lume XXXVII.
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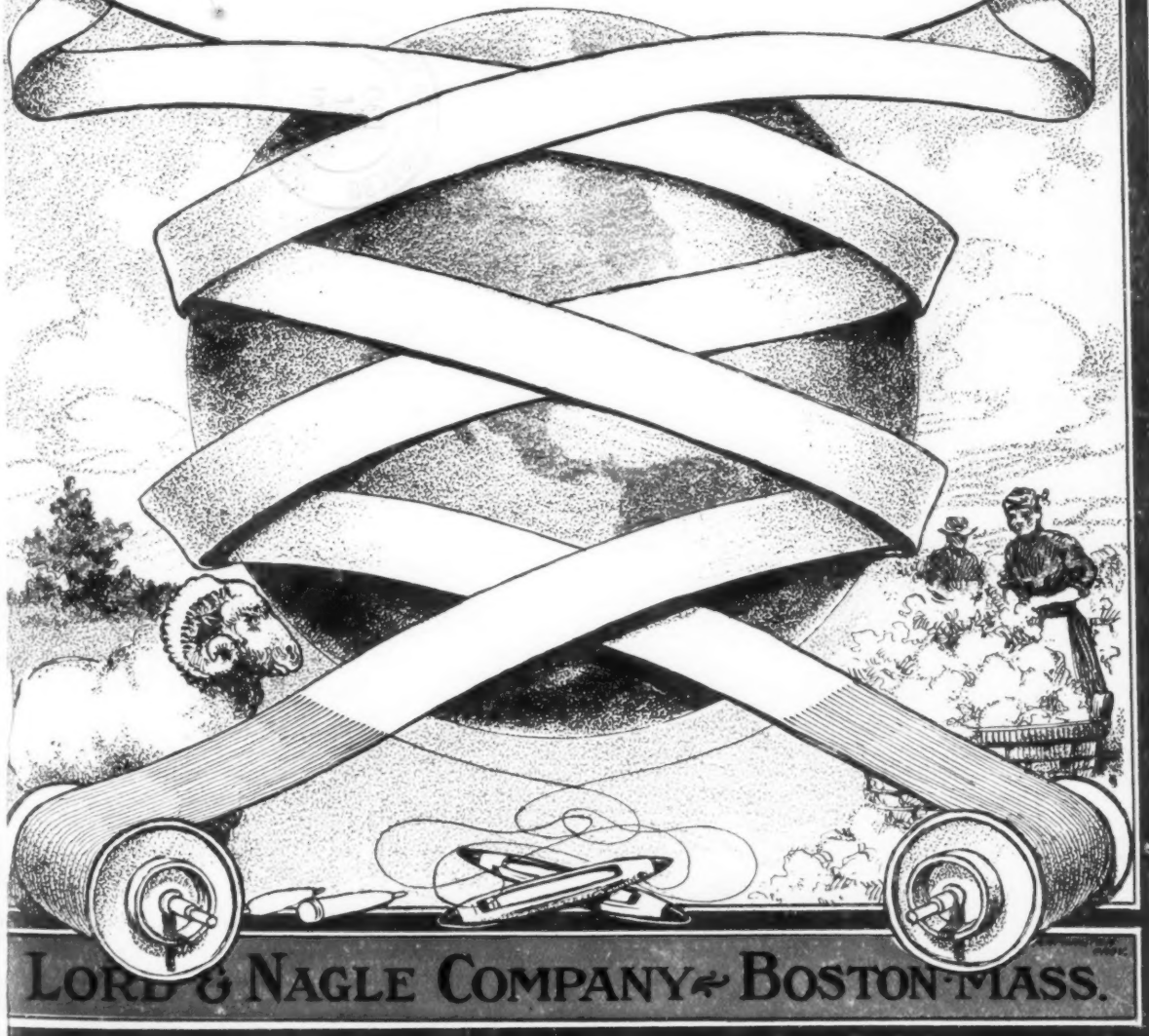
SEPTEMBER, 1909.

$2.00 per year.
$3.00 with Directory.

TEXTILE WORLD RECORD



ble of Contents, Page 63. Buyers Index, Page 167. Index to Advertisements, Page 177.

Mercerizing Machinery for Piece Goods

—— AND ——

Yarns in the Warp or Chain

All Kinds of Outfits for Bleaching Thread and Soft Twisted Yarns.
Bleaching Machinery for Yarns in the Warp or Chain.

BLEACHING
DYEING
DRYING
AND
FINISHING
MACHINERY

Singeing Machines, Boiling Kiers, Washers Water, Chemic and Sour Squeezers.

Rusden Patent, Continuous Chainless Steamer, Aniline Agers

Dyeing Machines, Open Soapers, Blanket Washers, Color Kettles, Horizontal or Vertical Drying Machines, with Copper or Tinned Iron Cylinders.

Water and Starch Mangles, Automatic Tentering Machines, Dyeing Machines for Chain Warps.

Dampening Machines. Calenders for Rolling, Glazing, Chasing and Embossing, also Calenders for Moire Finish.

Sole Manufacturers of Patented Flexible Cloth Expander for Cylinder Drying Machines, Calenders, Mangles, etc.

Combination Rolls Made of Cotton and Husk, especially adapted for Soft Finish, Unequalled for Elasticity and Durability.

Cotton, Paper, Husk, Chilled Iron, Brass and Rubber Rolls, Electro-Deposited Copper Rolls for all purposes.

Padding and Drying Machines for Shade Cloths, Single and Double Cylinder Engines, Hydraulic Presses and Pumps.

Estimates, Drawings and full particulars of complete plants furnished on application

THE TEXTILE-FINISHING MACHINERY CO.

Howard Building, Providence, R. I.

STUART W. CRAMER, Southern Representative, Charlotte, N. C.

Mercerizing Machinery

for

Piece Goods

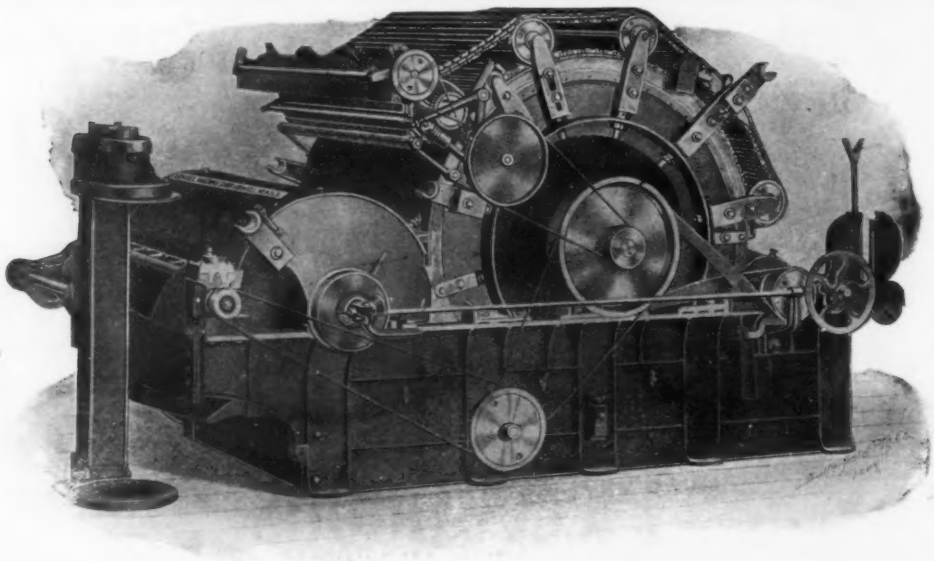
and

Warps

H. W. Butterworth & Sons Co.

Philadelphia, Pa.

Providence Office, Room 417, Industrial Trust Building



Cotton and Worsted Machinery

With Modifications to Suit Any Class of Work.

Cotton Machinery: Cards, Railway Heads, Drawing Frames, Fly Frames, Speeders, Ring Spinning Frames, Twisters, Spoolers, Reels, Warpers, Slashers, Winders, Looms, Shearing Machines, Balling Machines, Folders, Stamping Machines, Sewing Machines, Size Pumps, Size Kettles, Drawing-in Frames, Baling Presses, Indigo Grinders.

Worsted Machinery: Spinning Frames with caps, rings or flyers, Dandy Rovers and Reducers, Cone Second Finishers, Reducers and Rovers, Gill Boxes for Drawing, Preparing and Finishing, Weigh Boxes and Drawing Boxes, Cap Trap, Flyer and Ring Twisters.

Plans, Specifications and Estimates furnished upon application.

Lowell Machine Shop

LOWELL, MASS.

In ordering new spinning frames

If you wish to get the best results,

Be sure and insist upon

Centrifugal Clutch Spindles

Mirror Spinning Rings

(trade mark reg. U. S. Pat. Off.)

Rhoades-Chandler Separators,

And Speakman Lever Screws.

We also build

Northrop Looms **Dutcher Temples**
(trade mark reg. U. S. Pat. Off.)

Twisters **Spoolers**

Warpers **Reels**

and other patented specialties
for Cotton and Worsted Mills

DRAPER COMPANY

Hopedale, Mass.

J. D. Cloudman, Southern Agent

40 So. Forsyth Street, Atlanta, Ga.

THE EMPHATIC SUCCESS OF OUR "IDEAL" AUTOMATIC LOOM IS DUE TO SEVERAL SALIENT POINTS OF SUPERIORITY OVER ALL COMPETITORS:

1st. The ease and smoothness with which they start up.

2d. The acknowledged superiority of the cloth woven.

3d. Simple and thoroughly mechanical construction, assuring freedom from the constant breakage and expensive repairs attending other automatic looms.

4th. No special bobbins, shuttles or other expensive parts.

5th. Ability to use cop or bobbin filling interchangeably.

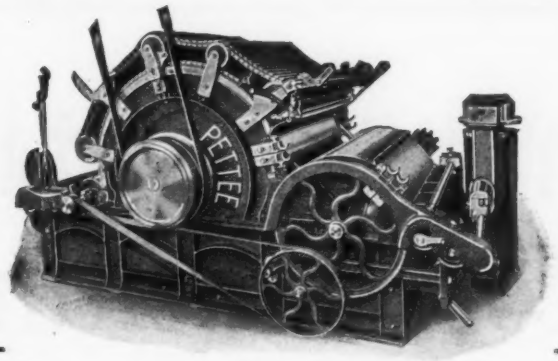
6th. Superiority of warp stop motion which does not break or fray the softest yarn.

7th. Of the thousands in operation not a single bobbin or crank shaft broken.

IN PROOF OF CLAIMS WE POINT TO THOSE MILLS FORMERLY USING OUR COMPETITORS' LOOMS THAT ARE NOW USING OURS.

The Stafford Company

Readville, Mass.



MODERN—ECONOMICAL

Cotton Machinery

IF YOU WANT ANYTHING IN THE LINES LISTED BELOW, WE CAN GIVE YOU *UP-TO-DATE* MACHINES THAT ARE DESIGNED TO, AND WILL, *SAVE YOU MONEY* IN PRODUCTION AND OPERATING EXPENSES

Revolving Flat Cards,	Intermediate and Roving Frames,
Lap Winders,	Spinning Frames,
Drawing Frames,	Spoolers and Reels
Railway Heads,	
Slubbing,	

Saco and Pettee Machine Shops

Works at Newton Upper Falls, Mass., and Biddeford, Me., U. S. A.

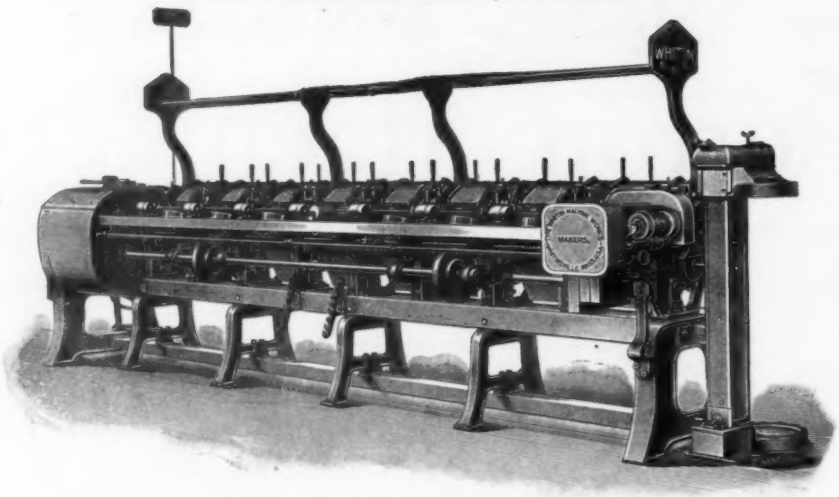
Southern Agent A. H. Washburn Charlotte, N. C.

THE

WHITIN MACHINE WORKS,

Cotton Machinery

WHITINSVILLE, MASS.



HIGH SPEED COMBER 1906 MODEL.

Revolving Flat Carding Engines,
Sliver Lap Machines,
Ribbon Lap Machines, Combers,
Railway Heads, Drawing Frames,
Spinning Frames, Spoolers, Twisters,
Long Chain Quilling Machines, Reels, Looms.

Southern Agent,
S. W. CRAMER

Trust Building, CHARLOTTE, N. C.
Equitable Building, ATLANTA, GA.

"Kitson Products"

Blowing Systems

For Conveying Bale Cotton
from Storehouse to Picker-room

Self-Feeding Openers
Lappers and
Cleaning Trunks

Waste-Working Machinery

Raw Stock Cotton Dryers

We own the Patterns and can furnish REPAIR PARTS for PICKERS
formerly built by

WHITEHEAD & ATHERTON, . Lowell, Mass.
ATHERTON MACHINE CO., - - Lowell, Mass.
A. T. ATHERTON MACHINE CO., Pawtucket, R. I.

Kitson Machine Shop

Lowell, Mass.

Good Bye, "Skilled Topper" Good Bye!

Our automatic hosiery machines make half-hose or ladies' stockings complete—feet and ribbed tops all together in one string by the yard or the mile. No skilled topper is needed.

One machine turns out on 200 needles 4 1-2 dozen pairs of ribbed top half-hose, or 3 1-2 dozen pairs of tucked top ladies' stockings per day. On 136 needles it turns out 6 1-2 dozen pairs of half-hose in a day. And one operator attends to 15 machines.

You save the labor cost of attaching the top by hand. You can run your machines every working day in the year—day and night if you want to. And you are independent of the skilled operator.

Don't you want to know more about this?

Scott & Williams

Machinery for knitting mills

2079 E. Cumberland Street, Philadelphia, U. S. A.

Some Days in June Were Very Hot

but during all those very hot days in June, the temperature of the Spinning Room located on the top floor of the above mill never exceeded 85° with less than 60% humidity, (the percentage desired), although the outside temperature was as high as 93° with only 40% relative humidity.

The Spinning Room of the old mill shown beyond, had a temperature as high as 103° with 34% humidity.

This shows wnat a vast difference is caused by the Carrier system.

Humidify—Cooling—Heating—Automatic Control

All from one apparatus

Ask for Catalogue

Carrier Air Conditioning Co.

Of America

No. 39 Cortlandt St., NEW YORK

(143 C.)

Good Bye, "Skilled Topper" Good Bye!

Our automatic hosiery machines make half-hose or ladies' stockings complete—feet and ribbed tops all together in one string by the yard or the mile. No skilled topper is needed.

One machine turns out on 200 needles 4 1-2 dozen pairs of ribbed top half-hose, or 3 1-2 dozen pairs of tucked top ladies' stockings per day. On 136 needles it turns out 6 1-2 dozen pairs of half-hose in a day. And one operator attends to 15 machines.

You save the labor cost of attaching the top by hand. You can run your machines every working day in the year—day and night if you want to. And you are independent of the skilled operator.

Don't you want to know more about this?

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Humidify—Cooling—Heating—Automatic Control

All from one apparatus

Ask for Catalogue

Carrier Air Conditioning Co.

Of America

No. 39 Cortlandt St., NEW YORK

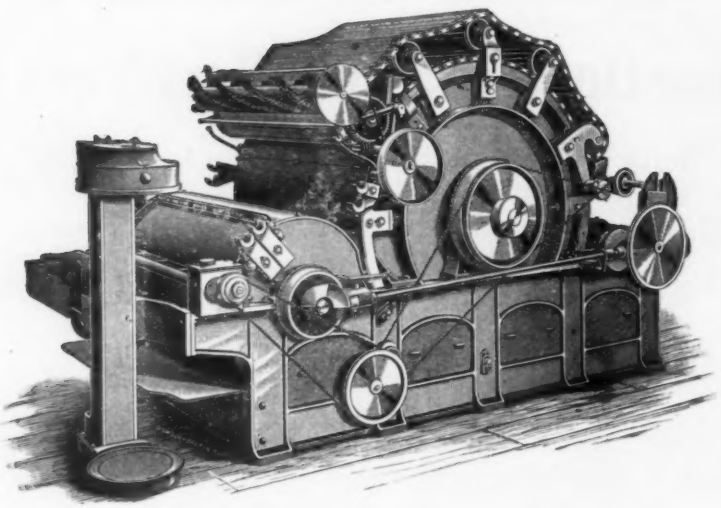
(143 C.)

Cotton Machinery

MASON MACHINE WORKS,

TAUNTON, MASS.

Southern Office,
Charlotte,
N. C.



Cards,
Combers, Railway
Heads, Drawing Frames
Spinning Frames, Mules and Looms

INCLUDING

Plain and Fancy Silk Looms

Winding room of a modern 75000 spindle cotton yarn mill using

No 50 "UNIVERSALS" exclusively for coning, tubing and doubling.

UNIVERSAL WINDING

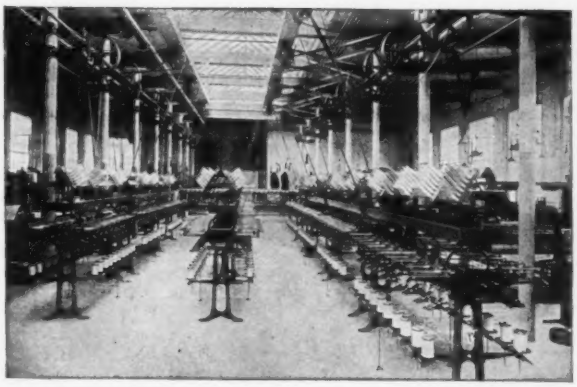
No. 10 "UNIVERSAL"

Loom Cop Winders in a Prominent Silk ribbon mill.

COMPANY - BOSTON

No. 90 "UNIVERSALS"

Installed for Winding Cotton-filling.



IMPORTANT ANNOUNCEMENT

Manufacturers are hereby warned against using infringements upon the Cramer patents for

Automatic Regulators for Humidifying Systems

Before considering the purchase of infringing devices, make sure that the vendor is amply financially responsible and guarantees to imdemnify the purchaser against loss by damage suits, for both infringers and users of infringements, however crude such infringements may be, will be prosecuted to the full extent of the law.

Don't be imposed upon by misleading terms and claims as to what the vendor's patents cover; anyone can get a patent for almost anything in the way of specific constructions; the vital question is whether or not such patents infringe other prior patents.

Cramer System of Air Conditioning

Spray Humidifiers as good as the best, of large capacity, durable, sanitary, air cleansing and efficient.

Air Conditioners *comprising all the good points of spray humidifiers*, particularly as to large moistening capacity and simplicity; *combined with the good points of evaporation types of humidifiers*, such as complete evaporation of the moisture, large air cleansing capacity and good distribution; *and without the objectionable features of either type*, such as wetting down, localized moistening, large and clumsy constructions, unsanitary conditions due to difficulty of access for cleaning and to the use of wet absorbent disease-breeding materials, and largely reduced efficiencies at all except the lowest humidities,—*features*, simplicity, durability comprising only seamless drawn sheet copper casings, a spray nozzle and a fan. The fans are either electrical driven, or mechanically driven with belts or ropes as the special requirements of each case dictate.

STUART W. CRAMER

Providence, R. I. **Charlotte, N. C.** **Atlanta, Ga.**

EVAN ARTHUR LEIGH

232 Summer Street (opposite the South Station), Boston, Mass.

SOLE AGENT

IN THE UNITED STATES AND CANADA FOR

Platt Bros. & Co., Ltd.

BY FAR THE LARGEST MAKERS IN THE WORLD OF

Cotton, Woolen and Worsted Machinery

Platt's Patent Opening and Picking Machinery.
Platt's Cotton Comber will comb from 7-8" stock to Sea Islands.
Platt's Special Machinery for Making Cotton Waste into Yarns.
Platt's Special Machinery for Making French Worsted Yarns.
Platt's Woolen and Worsted Carding Engines, Special Designs.
Platt's Cotton, Cotton Waste, Woolen and Worsted Mules.

MATHER & PLATT, LTD.

Dyeing and Finishing Machinery.
Archbutt-Deeley System for purifying and softening water.

GEORGE HODGSON, LTD.

Looms for Worsteds, etc.

THE PATENT AUTOMATIC FEEDING MACH. CO., LTD.

Patent Feeding Machines for wool, cotton, flax, fur and fibrous material.

JOSEPH SYKES BROS.,
Card Clothing for Cotton.

JAMES CRITCHLEY & SONS,
Card Clothing for Woolen and Worsted.

WILSON BROS. BOBBIN CO.'S.

Bobbins, Shuttles, etc.

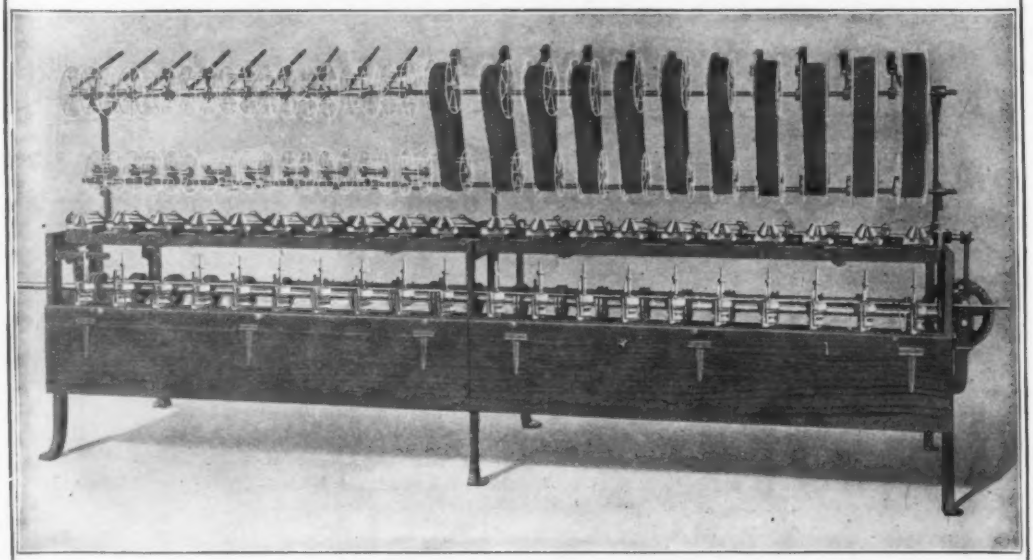
Dronsfield Bros. Grinding Machinery and Emery Filleting. The Best French and English Combing and Rubbing Aprons. Harding's Pins and Circles. Varey's Fallers, etc.

OSWALD LEVER CO.

(Formerly LEVER & GRUNDY.)

MANUFACTURERS OF TEXTILE MACHINERY

SOLE MAKERS OF OUR PATENTED SPECIALTIES
IN THE UNITED STATES



High Speed Cross Quiller to wind from skeins, spools or mule cops onto quills or paper tubes. It is built to run from 1800 to 2400 revolutions.

Conical and Parallel Tube Winding Machines; Warping Machines and Creels; Brass Bobbin Winding and other Machinery for lace mills; Chenille Cutting Machines, Sectional Warping Mill, Beaming Machines, etc.; Cop Winding Machines for butts to weave from outside; Filling Bobbin or Quill Winding Machines; Vertical Spindle Spooling Machine for silk, fine cotton, wool and worsted; Variable Speed Bobbin Machines for large bobbins used in knitting mills; Dresser Spooling Machines; Reeling Machines.

Lehigh Ave. and Mascher Sts., PHILADELPHIA, PA.

JAMES HUNTER MACHINE CO.

NORTH ADAMS, MASS., U. S. A.

Piece Dye Kettle. *Bulletin 53*

The Hunter PIECE DYE KETTLE

A machine that produces results.

No Shading or Uneven Dyeing.

Tank made of 3" CLEAR CYPRESS.

Tongued and Grooved and thoroughly boltcd.

IMPROVED HUMP REEL

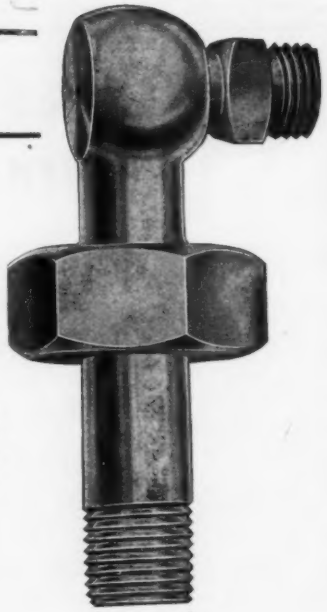
FRICTION PULLEY DRIVE

The heaviest, most substantial dye kettle built.

Any size for any number of strings.

Send for Bulletin No. 53.

TURBO TRADE MARK HUMIDIFIER



YOU Want the Best Humidifying System for Your Particular Requirements—

And we want you to get the one most likely to solve your humidifying problem, for we believe both mill owners and mill help will be better off when humidifying systems are used in all textile mills.

The Turbo-Humidifier

(*The Humidifier with a Guarantee*)

May not be the one for you. But it will maintain any desired degree of humidity, in all seasons, at all times, in all parts of the mill.

And it cannot overflow; does prevent dust, soot and lint, is very small and can be used in even the lowest posted of rooms; is most flexible and adaptable; extremely simple and equally economical.

Yet withal you will not know that the Turbo-Humidifier has all these advantages until you see it in operation, have one of our men talk to you, or read the treatise on Humidifying, that we send free to those asking for it.

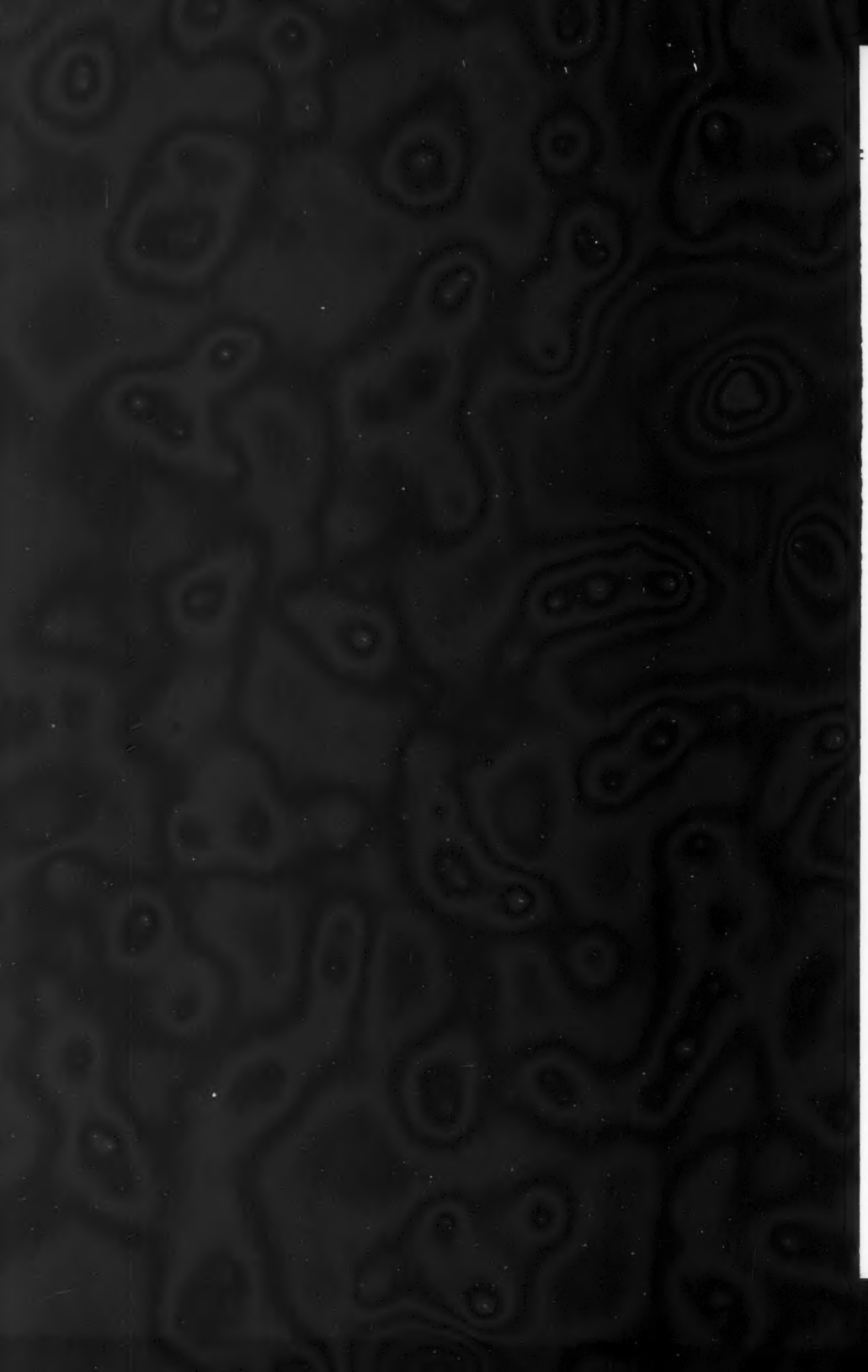
As a step in the right direction just drop us a line—"Send us your book on Humidifying."

The G. M. Parks Company

SOLE AGENT
FITCHBURG, MASS.

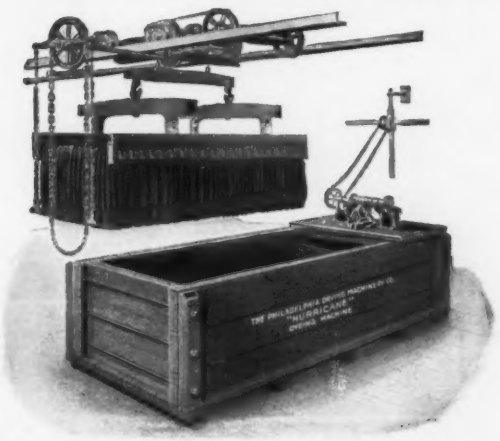
Southern Office, No. 1 Trust Building, Charlotte, N.C
B. S. Cottrell, Manager

TURBO TRADE MARK HUMIDIFIER



SAVE IN DYEING

75% in Labor
50% " Steam
35% " Dyes



"HURRICANE"

Circulating Dyeing Machines

For Yarn, Hosiery, Etc.
Are in a Class by Themselves

Patents No. 918,484 and 918,485
April 13, 1909.

ALL INFRINGEMENTS WILL BE PROSECUTED

SINGEING

HOSIERY, WITHOUT BOARDS,—COSTS LESS THAN HALF

What you have paid heretofore
BY USING

"Hurricane" Automatic Singeing Machines

Patent No. 895,711, August 11, 1908
" " 919,999, April 27, 1909
" " 930,116, August 3, 1909

Power Screw and Hydraulic

PRESSES

For Hot or Cold Finishing, make higher prices possible on account of the better finish of the goods.

THE PHILADELPHIA DRYING MACHINERY COMPANY

"Hurricane" Dyeing, Drying and Finishing Machinery
Complete Equipments for Scouring, Bleaching, Carbonizing, Etc.
6721 Germantown Ave., Philadelphia, Pa.

Duxbak Waterproof Leather Belting

Your insurance against shut downs on line shafts and machines is worth much more than the cost of any Belting.

Duxbak Waterproof Leather Belting insures steady running with the least possibility of a stoppage in working hours.

Have you noticed the disposition of machine builders, who have tried other methods, to get back to belt drives?

Profit by other peoples mistakes and at the same time secure the best kind of a belt drive by using Duxbak.

It's waterproof.
It's stronger in fibre and pull than any other belting made.

There are no "Seconds" in DUXBAK LEATHER BELTING—
There can be no "nearly waterproof" DUXBAK deliveries.

Every inch of it is guaranteed by forty-one years of supremacy in tanning and belt making.

Chas. A. Schieren Company

NEW YORK, 29 Ferry Street.
PHILADELPHIA, 226 North 3d St.
CHICAGO, 84-86-88 Franklin St.
BOSTON, 641 and 643 Atlantic Ave., opp. South Station.
PITTSBURG, 205 Wood St.
DENVER, 1622 Wazee St.
BROOKLYN, N.Y. cor. 13th St. and 3d Ave.
HAMBURG, GERMANY, Auf dem Sande 1.
OAK LEATHER TANNERIES, Bristol, Tenn.

Thos. Leyland & Company

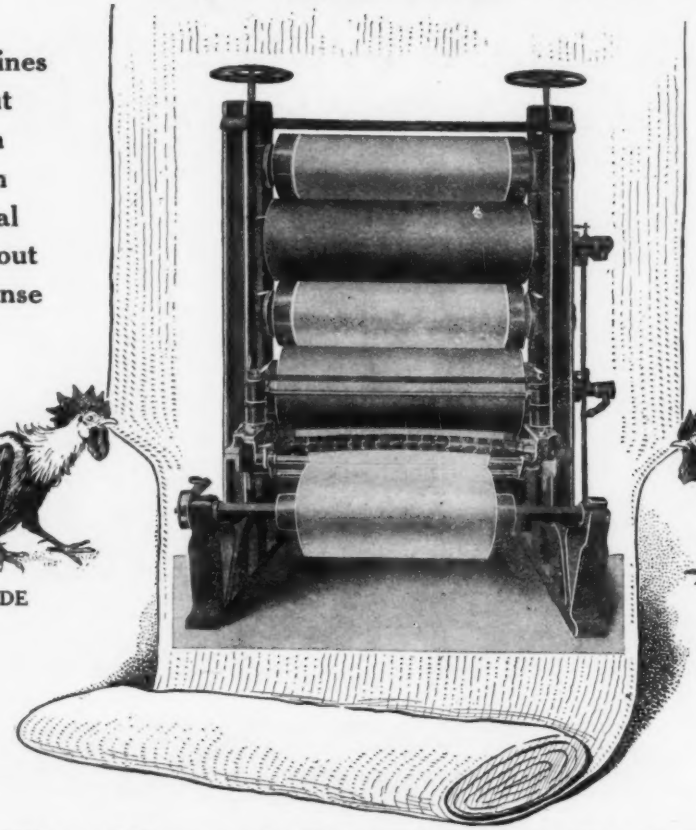
F. T. WALSH, Manager

60 India Street, Boston, Mass.

Gums, Dextrines, Corn, Wheat & Potato Starches

Soluble Starches, Softeners, Etc.

Machines put in on trial without expense



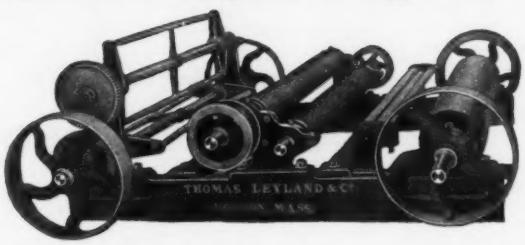
We help you to solve the problems of exacting converters by giving them the width

TRADE

MARK

The Wm. Mycock Regulating Cloth Expander

Sole Manufacturers under The Mycock Patents



We are becoming experts in this line. Prove us

Improved Free Running, Solid Brass Scroll Cloth Scutchers

American Textile Specialty Machinery Co.

670 Eddy St., Providence, R. I.

MANUFACTURERS OF

SHUTTLES AND SHUTTLE IRONS

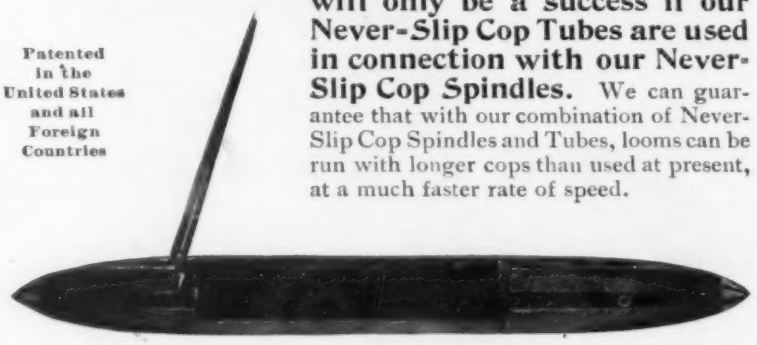
FOR ALL TEXTILE PURPOSES

Never-Slip Cop Tube

Patent applied for.

Filling-Waste is reduced to nothing and long Cops will only be a success if our Never-Slip Cop Tubes are used in connection with our Never-Slip Cop Spindles. We can guarantee that with our combination of Never-Slip Cop Spindles and Tubes, looms can be run with longer cops than used at present, at a much faster rate of speed.

Patented in the United States and all Foreign Countries



Shuttle with Spindle Raised

U. S. Patents: 778851, Jan. 3, 1905; 790611, May 23, 1905; other patents pending

Shuttle with Spindle Lowered

U. S. Patents; 778851, Jan. 3, 1905; 790611, May 23, 1905; other patents pending

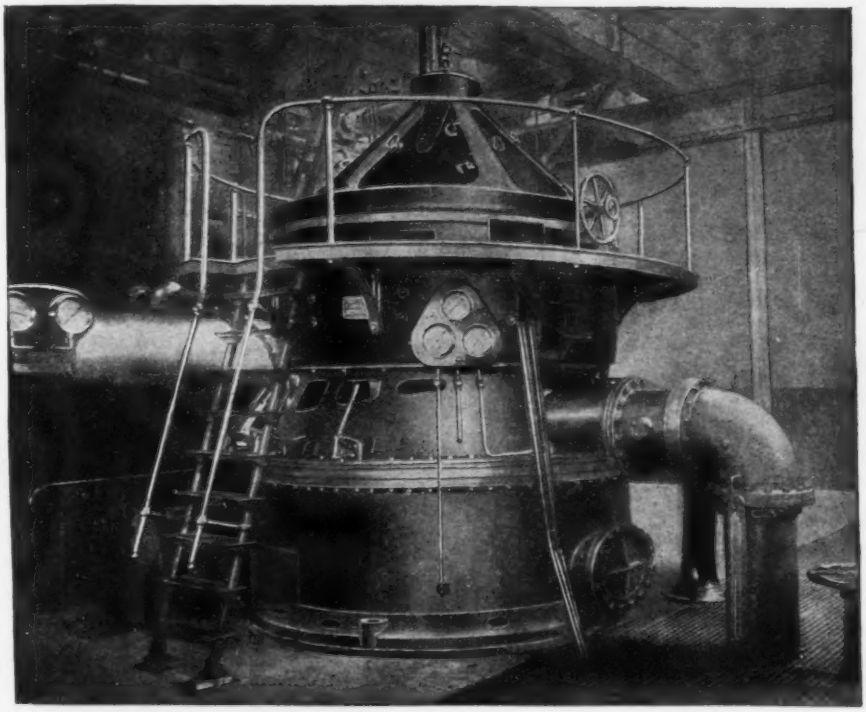
We also manufacture a complete line of

Paper Cop Tubes, Cones and Shells

Send your samples and we will quote prices on any lot desired

New York Office, 363-373 Rider Ave.

Curtis Low Pressure Turbines
operate with exhaust steam



31700 Kilowatts Installed – and on order.

The Curtis low pressure turbine offers a means of increasing the capacity and improving the economy of existing power stations which use reciprocating engines, whether the engines are now operating condensing or non-condensing. A complete line is available from 300 to 7,000 kilowatts.

It is also a means of producing electric energy from steam exhausted by engines employed in manufacturing—the energy being in the nature of a valuable by-product secured with a minimum expense. By this means old Engine driven plants can by a small expenditure be brought to a state of ideal economy.

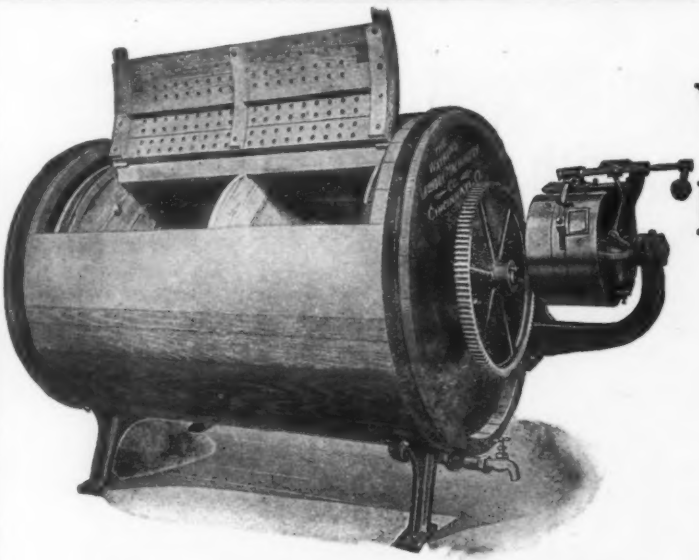
General Electric Company

New York Office
30 Church St.

Principal Office, Schenectady, N. Y.

Sales Office in
all large cities

(2072)



Washing Machines

for

Textile and Hosiery Mills

all styles and sizes.

No matter what your needs may be, we can supply you from our line.
Address our nearest office.

Hydro Extractors

all styles

Under-Driven Extractors

Over-Driven Extractors

Motor-Driven Extractors

The American Laundry Machinery Mfg Co

Western Division
78-80 Franklin St.
Chicago

Eastern Division
132-138 W. 27th St.
New York

Southern Division
Station H
Cincinnati

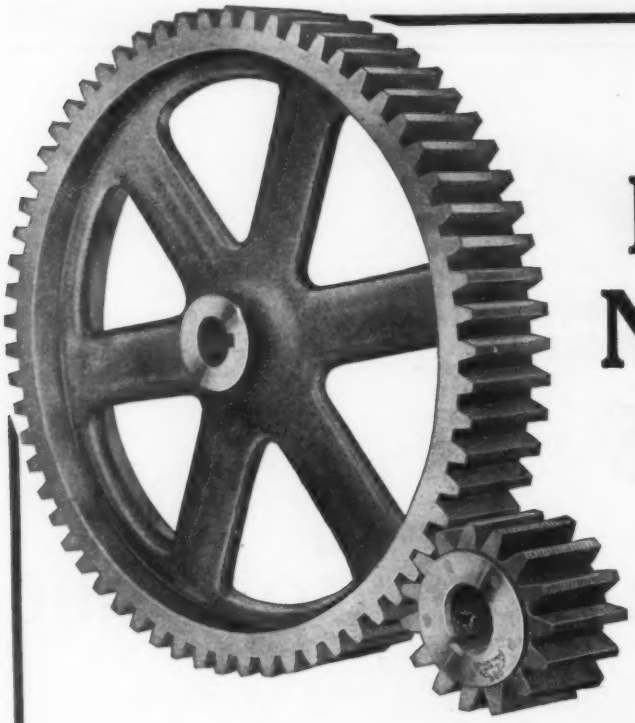
Globe Cotton Softener

is a pure soluble product made from vegetable oil which replaces TALLOW and other substances as a softener and lubricant in the sizing, dyeing, finishing and bleaching of cotton yarns, fabrics, knit goods, etc.

Globe Cotton Softener modifies the stiffness and harshness due to the materials used in the various process.

When used by itself for softening, "oiling" or "greening" bleached and dyed goods, yarns or **knit** goods gives a full mellow feel and brightens the colors **without** greasiness.

Corn Products Refining Co., New York



New Process Noiseless Pinions

Make an ideal motor drive.

By their use you secure a noiseless positive drive with no decrease in efficiency. They will wear like iron.

NEW PROCESS PINIONS also reduce objectional vibrations and are therefore, the best for high speed drives.

New Process rawhide is cured by our secret process which makes it different from the ordinary kind.

For twenty years we have been making gears and we stand back of our product with a guarantee as to quality and workmanship.

We make all other kinds of gears as well as rawhide. May we tell you more about them?

Descriptive Catalogue for the asking.

The New Process Raw Hide Company

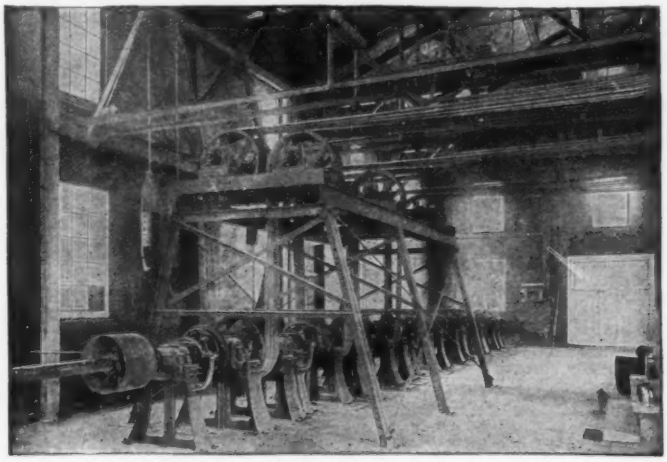
Syracuse, N. Y.

DODGE

Designed Rope Drives

are transmitting large powers between centers as distant as seven hundred feet ; and between centers as short as nine feet; at all angles, indoors, outdoors. During the last twenty-five years we have designed and furnished rope drives which have successfully solved many other varied power-transmission problems.

Every one of these drives is operating with the best possible efficiency, with the least friction loss and the lowest cost of maintenance.



Our experience demonstrates that Dodge Designed Rope Drives would effect a great saving in transmission, if installed in many situations where other methods are now employed. If you are interested in the application of rope driving to the transmission of power, fill out the coupon below for a copy of our new book, B-76, "Twenty-five Years of Rope Driving," which shows some of our achievements in this line. On receipt of necessary data, power to be transmitted, speed of driver and driven, distance between centers, etc., we will be glad to advise with you regarding installation of a rope drive.

New York
St. Louis
Cincinnati
Philadelphia

Dodge Manufacturing Co.
Station I-46 **Mishawaka, Ind.**

Chicago
Boston
Pittsburg
Brooklyn

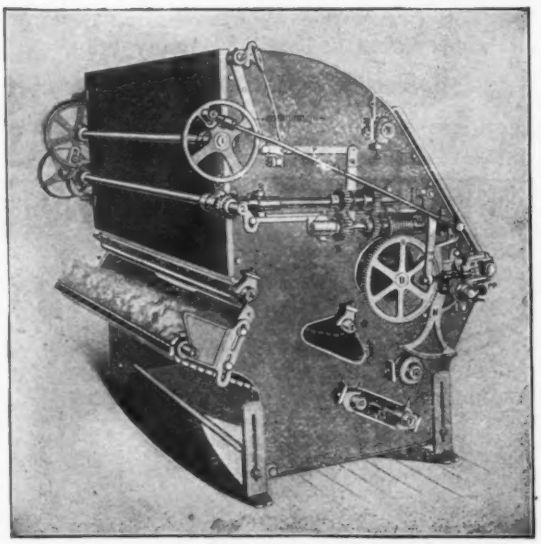
Dodge Mfg. Co., Station I-46, Mishawaka, Ind.

Send me Bulletin B-76, "Twenty-Five Years of Rope Driving."

Name ..... Firm .....

Position ..... City ..... State .....

THE FISHER PATENT CARD FEED



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Woonsocket Machine and Press Company

WOONSOCKET, R. I.

SMITH, DRUM & CO.

"BUILDERS OF THE BEST"

Labor Saving Machinery for Dyeing, Singeing and Finishing

HOSIERY

IN SULPHUR, ANILINE, DEVELOPED BLACKS AND COLORS
POWER SCREW PRESSES and MERCERIZING MACHINES

SAVE LABOR and **DYE STUFF** and do **BETTER WORK** in your dye house by using

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Full Particulars on Application

CORAL AND CUMBERLAND STREETS

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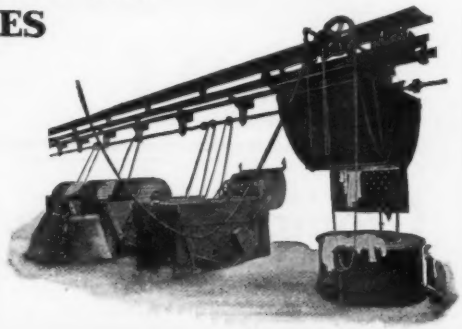

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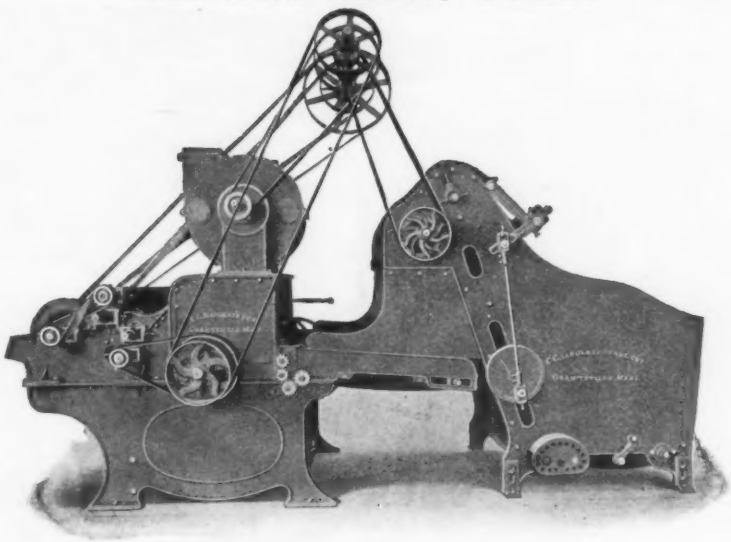
CORPORATION

GRANITEVILLE, MASS.



Multiplex Burr Picker and Self Feed.

The advantages of this Burr Picker are readily apparent to any practical mill man. It is the only Burr Picker having two guards, both of which knock the burrs out of the machine, and away from the approaching wool. Both surfaces of the lap of wool are cleaned. Our catalog tells more about it, shall we send it ?

C. & K. Dobbies

are best adapted to every requirement — always the leaders in efficiency and economy.

We apply them to any and all makes of looms.

Crompton & Knowles Loom Works

Worcester Providence Philadelphia

Farrel Foundry & Machine Co.

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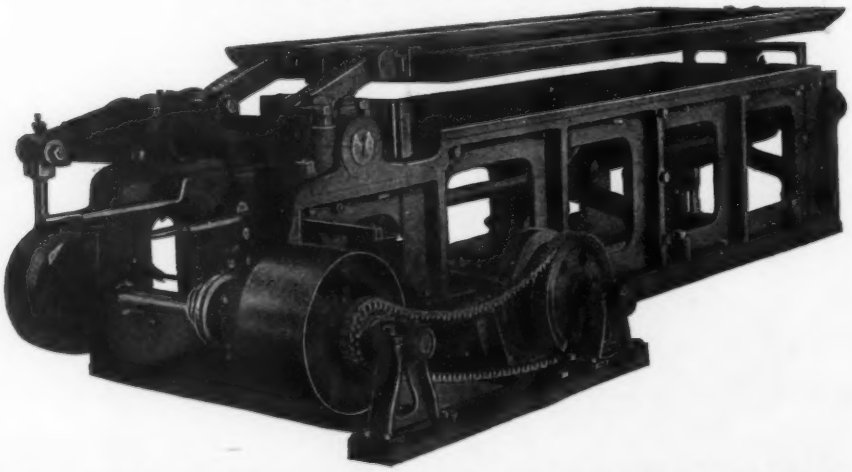

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Chilled and Soft Iron Rolls. Heavy Transmission Machinery.

Machine Molded and Machine Cut Gearing, to 20 ft. diameter, Etc., Etc.

Heavy Castings, in Gray Iron or Semi Steel.

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EASTON AND BURNHAM MACHINE CO.

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REPAIRS FOR RABBETH SPINDLES

LOOK

At that cast iron hub, strong enough to stand the most extreme strain yet in appearance, neat and clean cut.

It is reamed and bored true, thus insuring a perfect fit and firmly adhering to shaft by the compression furnished in tightening the four hub bolts. This dispenses with both set screws and keyways.

The Philips Hub permits of bushings that vary in sizes by sixteenths up to the bore of the hub, these being interchangeable allowing the pulley to be used on varying sizes of shafts.

See how extremely wide the spread of the arms is at the hub giving such great strength to this pulley over other designs, especially when a sudden shock or steady strain comes on the outside edge of the pulley rim.

Let us tell you of the rim, the rim lugs and *all* about it. Don't fail to give us your name and address on a post card.

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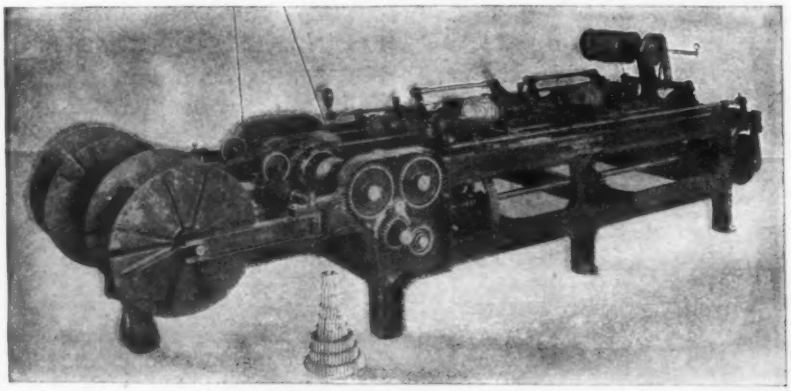
The Haskell-Dawes Machine Co.

176 Federal Street., Boston, Mass. Works: Frankford Junction, Philadelphia



Spinning, Forming, Twisting and Laying Machinery.

We build the Very best type of

Modern, High Speed, Geared Machines

For Making Cotton, Flax, Jute and Manila Rope and Twine.

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Make Your Own Bleach Out of Salt Water

We can supply the Knitting Mill trade with an Electrolyzer for the production of bleaching liquor out of ordinary salt water by means of an electrical current, at a very small cost compared with what it will do. Does away with chloride of lime entirely; reduces the amount of sour; no danger of tendering goods. Operates under direct current. Hundreds in use. Prices and full particulars on application.

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LAWSONS

Hope Foundry, LEEDS, England

BRANCH OF

Fairbairn Lawson Combe Barbour, Ltd.

MAKERS OF MACHINERY FOR

Preparing and Spinning

Flax, Hemp, Tow and Jute

Special Machinery for the Manufacture of Twines, Rope Yarns and Binder Twine

Good's Combined Hackling and Spreading Machine.

Long Reach Screw-Gill Drawing Frames. Chain-Gill Drawing Frames with Apron Heads.

Patent High-Speed Horizontal and Automatic Spinning Frames for Manila.

Improved Laying Machines.

Haskell-Dawes Tubing Twisters.

Brownell's Patent Twisting and Laying Machines for Twine.

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PERFORATED METALS FOR TEXTILE MILLS

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Dye Tubs,
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Scouring Tanks,
Steam Boxes,
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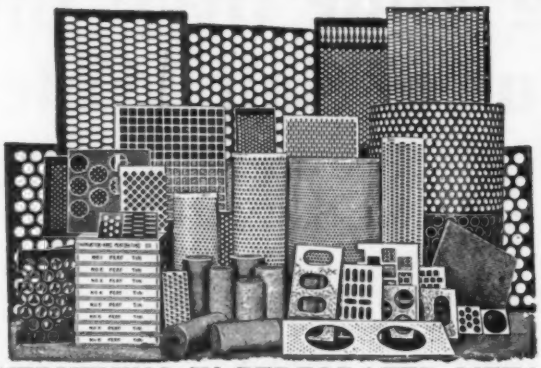
Plates.



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EVERYTHING IN PERFORATED METAL

Perforated Brass and Copper for Wool Washing Machinery.
Perforated Steel (black or galvanized) for Dusters, Reels, Drying Floors,
False Bottoms, Drainers, etc., etc.
ALL SIZES OF STEEL SURFACING.

It has been our business for many years to meet every need in this line and we have both the experience and facilities to do it. As most of this work is made to order send complete specifications.

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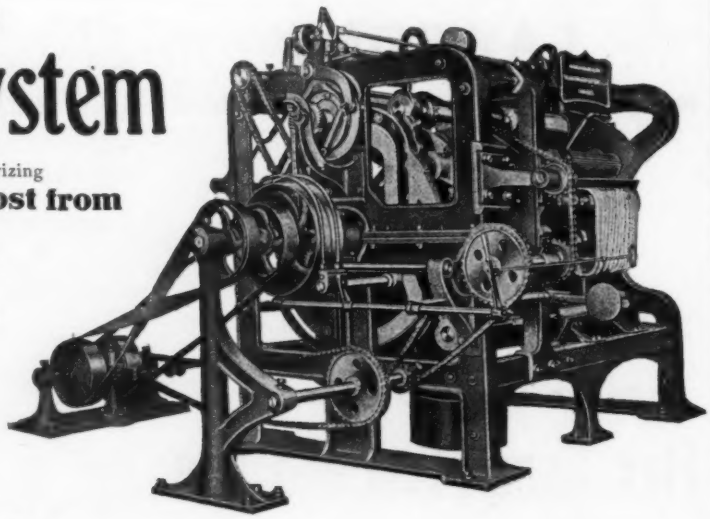
The Swiss System

of yarn mercerizing
Reduces the Cost from 20 to 50%
under that of your present method.

We invite investigation and comparison.



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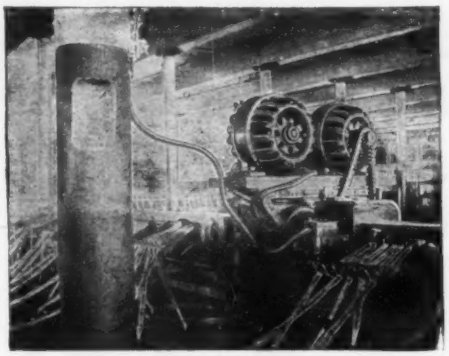

Westinghouse Motors Driving Drawing Frames.

Belts are always in the way

especially around drawing frames. To reduce the number of belts from shafting to frames, the custom has been to drive three or four frames from one overhead belt by a countershaft underneath the frames, with a pulley to each frame. This necessitates not only short, tight belts, but one more belt to a group than if each frame were driven by an overhead belt from the ceiling shaft.

By operating your frames with individual Westinghouse Motors you eliminate the countershaft, the quarter turns, the short, tight belts and all slip, and secure a positive maximum speed at all times, insuring increased production and a decreased power cost.

See Textile Motor Talks No. 3

Westinghouse Electric & Mfg. Co.

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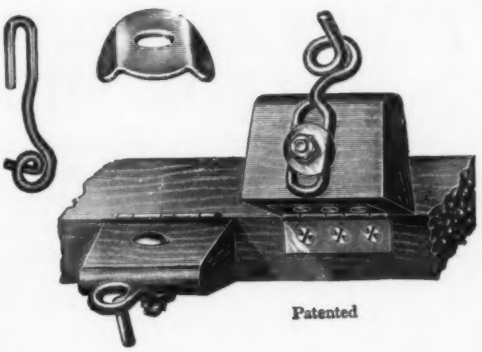
MEMBER OF AMERICAN ASSOCIATION OF ELECTRIC MOTOR MANUFACTURERS A A M M

The accompanying illustration shows the **Palmer** adjustable thread guide for spinning and twisting. This guide is **Adjustable** in all directions and can be rigidly and permanently fixed. **Thread** boards and rails of metal which are expensive are not necessary with this **Guide**



Patented

SEND two clappers for free samples for circular.

The Palmer Revolving Guide for Wet and Dry Twisting

Lays the fiber closer
Makes a smoother twist
Saves power
Will outwear many wire guides

Patented

THE I. E. PALMER CO., Middletown, Conn.

CRESSON

Power Transmitting Machinery

Ring Oiling Hanger
"Philadelphia Pattern"

Shafting — Pulleys
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Rope Driving a Specialty

Power Plants Designed and Equipped

Prices Right Shipments Prompt
Catalogs for the asking

Cast Iron
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BUCKEYE TUNGSTEN LAMPS As Installed By THE BUCKEYE ELECTRIC CO. Will Increase The EFFICIENCY OF SILK MILLS Where Artificial Light Is Required WITH TRUE COLOR VALUE.

BUCKEYE TUNGSTEN LAMPS The BEST AND CHEAPEST PROTECTION AGAINST IMPERFECT WORK

NO BREAKAGE FROM VIBRATION AND HANDLING. LIGHT WHERE IT IS WANTED.

Write The Buckeye Electric Co. For Full Particulars.

THE BUCKEYE ELECTRIC COMPANY

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Adjustable Binder Frame for belt drives to Spinning Frames, Twisters, etc.

WM. SELLERS & CO., Incorporated

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Makers of

Shafts,
Couplings,
Pulleys,
Hangers,

and all most approved appliances for the

Transmission of Power by Belts, Gears or Ropes

Catalogue upon request.

Machine Tools,
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Patented in the United States and Foreign Countries.

"If you want the best specify the

American Wrought Steel Split Pulley

with rim of one layer of metal, grooved in center, stiffened by internal central flanges, and rolled beads on edges, six duplex steel arms, radiating from a steel hub and without rivets between hub and rim. More than 1,000,000 in use giving entire satisfaction. Sold by Supply Houses everywhere."

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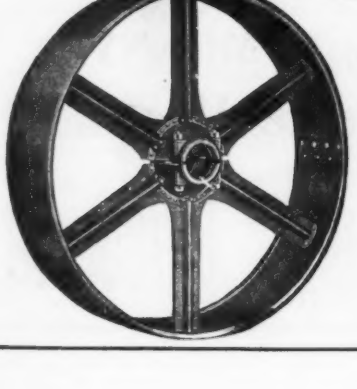
THE *ONEIDA* STEEL PULLEY



MADE IN THE GREATEST RANGE OF SIZES OF ANY STEEL PULLEY IN THE WORLD.

¶ Not restricted to any particular class of transmission. Its system of construction allows it to be made any size from 6" to 126" in diameter with 2" to 40" face to fit 1" to 8½" shaft. Stands the test of hard service.

¶ Our specialty is pulleys over 48" in diameter.

¶ The new catalogue which is just out is yours for the asking.

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TEXTILE MACHINERY

OF EVERY DESCRIPTION FOR COTTON, WOOLEN AND WORSTED.

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JOSEPH STUBBS, Gassing, Winding and Reeling Machinery for Cotton, Worsted and Silk.
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THE PREMIER SPINDLE & FLYER CO., Halifax, Eng., Cops, Tubes and Spindles for Worsted, etc.

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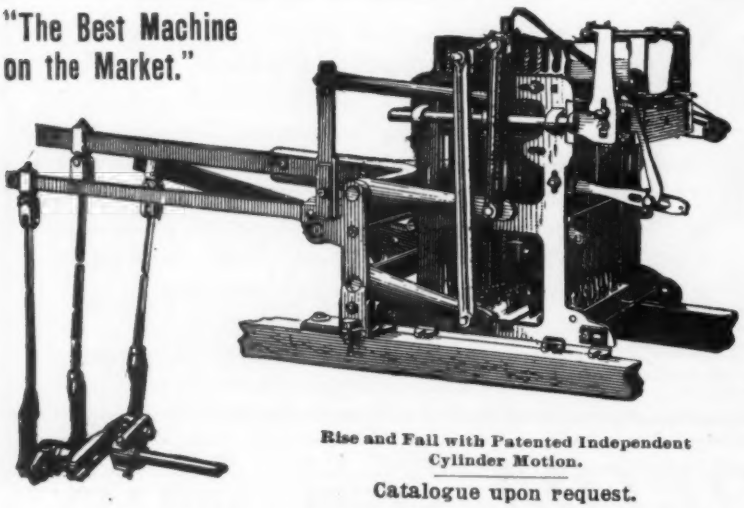
Pick Classes, Leather Aprons, Patent Wire Chain Aprons, Etc.

"The Best Machine on the Market."



Rise and Fall with Patented Independent Cylinder Motion.

Catalogue upon request.

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HALTON JACQUARD

Original Fine Index Machines

Single Lift, Double Lift, Double Cylinder, Rise and Fall, Crossborder.

THOMAS HALTON'S SONS,

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Representative
H. A. Forbes, Paterson, N. J.

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COCKER MACHINERY COMPANY

Improved Warping and Beaming Machinery

of all types for Cotton Textiles.

Improved Double Acting Nappers and Felters

For Cotton and Woolen Goods.

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AMERICAN MOISTENING COMPANY

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Received the HIGHEST AWARD on recommendation of the FRANKLIN INSTITUTE for

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Is the largest manufacturer of HUMIDIFIERS in the world. The last twenty years receiving the HIGHEST AWARD in this country and Europe for its AIR-MOISTENING SYSTEM. EIGHT GOLD MEDALS and others.

The Only Perfect System of Air Moistening

Has Been Adopted by the Representative Manufacturers of this Country.

The only System adopted in the Textile Schools. Write for booklet "T" on Humidification. Legal proceedings will at once be taken against infringers and users of infringements.

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are desirable on all Baskets or Boxes, especially where there is to be continuous, heavy dragging. The shoes increase the weight but little, and a Basket thus shod is more desirable as it slides with less resistance and with less wear and tear to floors, than when made with the plain uncovered steel runners.

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Crabbing, Steam Finishing, Opening and Folding, Tacking, Sewing, Squeezing Machines

BIRCH TREE.

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BIRCH TREE.

Bleaching and Napping Machinery

We have the Largest Exclusive Spool Manufacturing Plant in the World with a capacity of 10,000 High Grade Bushed Spools per day.

Our splendid facilities guarantee prompt and immediate deliveries. Our equipment, than which no better exists, guarantees the highest grade of all hard wood spools of the highest quality procurable at medium prices.

COTTON WARPER SPOOLS, COTTON TWISTER SPOOLS, WORSTED ROVE SPOOLS, CARPET CREEL SPOOLS, WORSTED REDUCER SPOOLS, WOOL WARP SPOOLS.

We can give one week deliveries on any order of the above kinds of spools.

Lestershire Spool & Manufacturing Co.,
LESTERSHIRE, N. Y.

Do You Need a Water-Proof Belt? If So, Buy An "AQUA."

There may be some more or less creditable water-proof belts now on the market that resist the deteriorating effects of moisture tolerably well for a short time, but it is mighty hard to find one that will not slip, or one in which the plies will not separate after long service.

"AQUA" Water-Proof Belting is water-proof, steam-proof and acid fume-proof. In addition, it has the pliability, wearing and lasting qualities of good leather belting. Our patent process of mineral tannage makes the leather impervious to water and weak acids but retains the original strength and pliability of the rawhide.

Write For Circular No. 6.

THE SHULTZ BELTING CO.
ST. LOUIS, MO.
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"NO WASTE"

Is the name of the only

Seamless Hard Fibre Roving Can

MADE FROM PURE CHEMICAL HARD FIBRE

NO SEAMS or RIVETS

Absolutely Smooth

No Waste or Broken Ends

Write for prices.

MANUFACTURED BY THE

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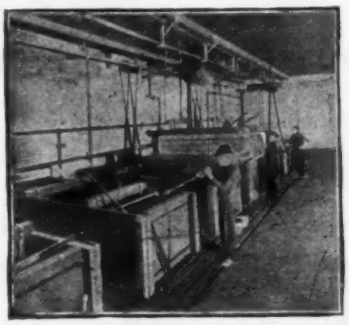
Waters' Dyeing Machine

This cut shows a new and useful machine patented by D. F. Waters for the dyeing of any color on Worsted, Woolen, Cotton and Merino Yarns.



Being successfully operated by some of the largest manufacturers in the country.
The saving of labor will more than pay for a machine in a few months.
Capacity; 2,000 lbs. a day per man.
Machine can be seen in operation at any time at my plant where I have 13 in operation all the time.

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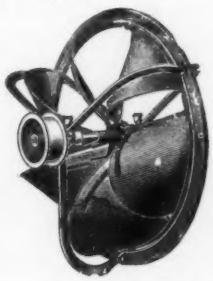
applied to Cloth, Wool, Cotton, Drying Rooms, Tables or Machines makes a Guaranteed increase of 25 per cent.

We improve Carbonizers also.

This is our Berry Wheel the most efficient agent for drying, eliminating steam and other impurities in the atmosphere.



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Card Clothing in Leather
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Drawing Frame Pins
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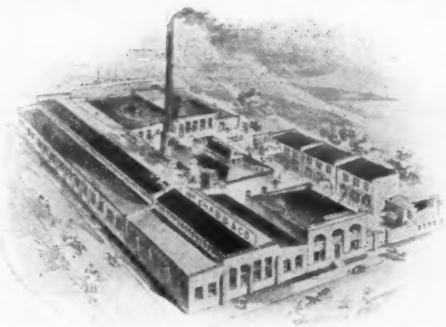

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Hackle Pins
Jennie Pins
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Steel Springs
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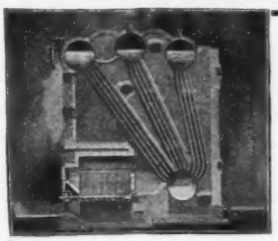
NEWARK, N. J.



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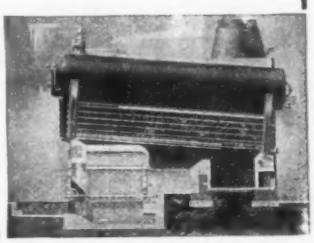
Burns Slack with Great Economy

The Murphy can be installed under any type of fire-tube or water-tube boiler and to units of any size.



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MURPHY IRON WORKS

DETROIT, MICH.

Hydro-Extractors, Exhaust Fans, Dye Tanks and Tubs

Adjusts itself to an uneven load, runs without vibration
Unusual capacity for high-class work

Bridger Hydraulic Cutting Press

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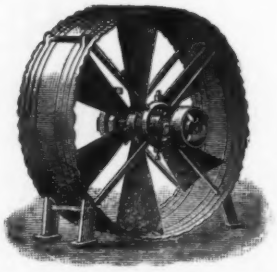

Moves more air than any other fan made. Very efficient under widely varying conditions. Noiseless and does not obstruct the light

SCHAUM & UHLINGER, Inc.

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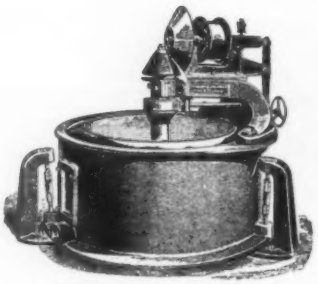

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SUBSTANTIAL EQUIPMENTS NOW IN PROCESS.
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K-A STANDS FOR CERTAINTY—SAFETY—SAVING.

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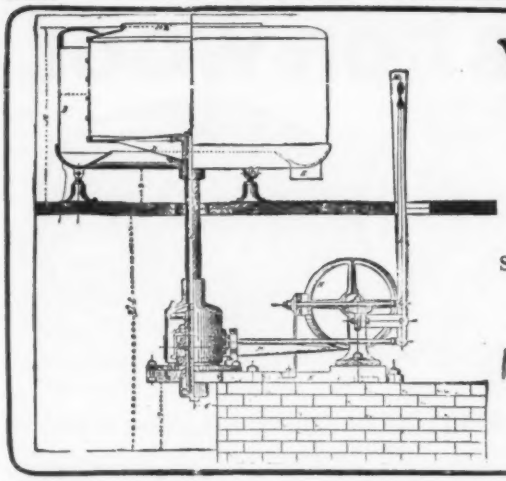

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SHAFTING, PULLEYS,
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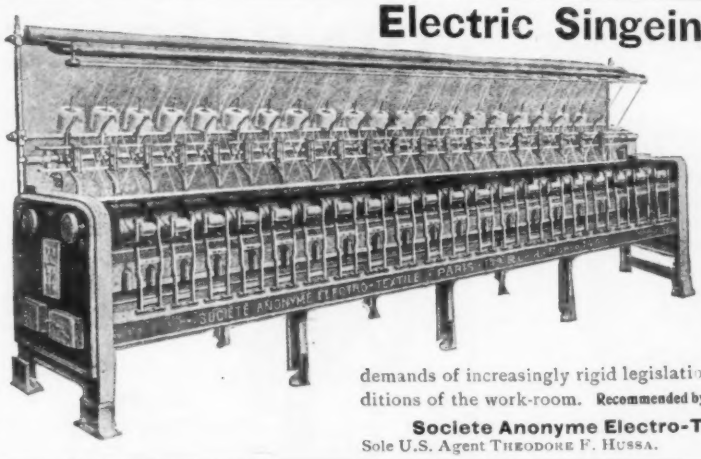

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Simple to operate.
The only machine that allows manufacturers to meet the demands of increasingly rigid legislation controlling the health conditions of the work-room. **Recommended by the Commissioners of Labor in France.**

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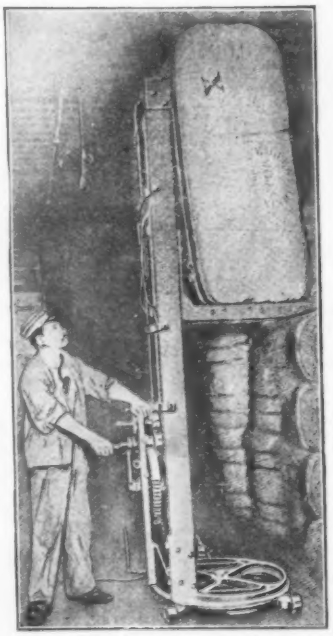

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No. 9.—Portable Foot-Power Rotary Sewing Machine

It is especially adapted for use in Cotton and Woolen Mills, Bleacheries, Print Works at the Printing Machines, in Dye Works, Cloth Rooms, at the Fulling Mill, Shears, Calendars, Gigs, Drying Machines, etc., or any of the different finishing processes in textile mills.

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Reduces Friction, Cools Hot Journals While Running, Saves Oil.

Pure White and Cleanly

The best way to lubricate properly and efficiently is to mix Mica Flake with your lubricating oil or grease. It goes right to the cause of friction and reduces it.

Mica Flake decreases the consumption of oil fully 40 percent.

We guarantee Mica Flake to give satisfactory results.

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Send us order for a can on trial for 30 days. If not satisfactory, return at our expense and your obligation ceases.

Packed in 25, 10 and 5 pound cans, and 100 pound sacks.

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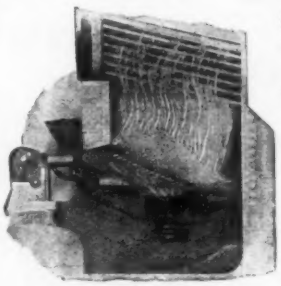
Write for Folder T W R **CHICAGO**

The
COST of REPAIRS
for the
TAYLOR STOKER



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There are no grate bars; the stationary inclined tuyere blocks are always protected by green coal and cooled by air currents. No moving part becomes more than comfortably warm.

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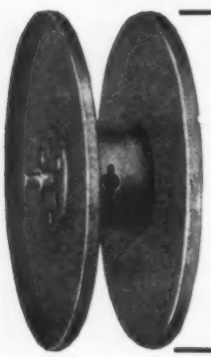

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Stamped Steel Beams are unbreakable, light in weight and moderate in cost.

Their use saves the cost of breakage, renewals, repairs, as well as loss of time and bother.

Flanges always run true, no wood to warp, crack or splinter. Saves yarn waste. Let us tell you more about them.

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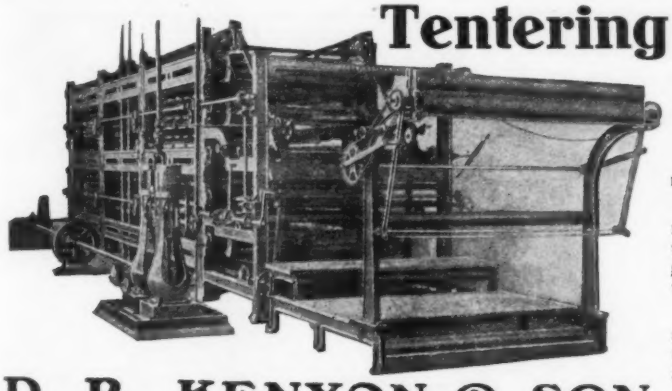
See our special Reel, Spool and Beam Catalog. **Attleboro, Mass.**



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The wet goods in transit through the machine are thoroughly dried and tentered to the proper width. Although goods entering may be of various widths, all delivered are uniform.

The machine uses but a small amount of steam, and being substantially constructed, the repair bill is almost a negligent quantity.

It is equally efficient for heavy as well as light goods, either wide or narrow.

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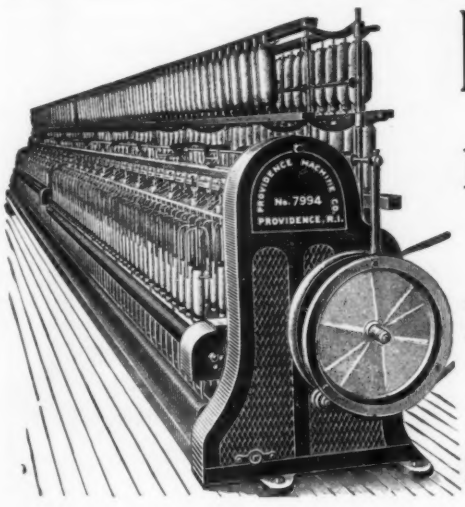

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Improved Worsted Roving Frames

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The Successful Transmission of Power

from the Engine Room to all parts of your mill depends on the condition of your belts; and the condition of your belts depends upon the Quality of the Belt Dressing you use.

GET A BOX AND TRY IT

This is Your Absolute Protection in Getting
GENUINE
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The kind that won its favor through its quality—the quality that keeps the belts in prime condition. Beware of the many attempted imitations now on the market. They imitate in name and appearance only. The quality—THE ONLY QUALITY—belongs exclusively to the original STEPHENSON BAR BELT DRESSING, which bears the above trade mark, the Man with the Cog-Wheel Face, on each pound stick.

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Send 10c for Sample Can of STEMKO BELT KLEANER which removes oil and grease and rejuvenates Belting.

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FOR TEXTILE MILLS

The weaver in a silk mill finds the Cooper-Hewitt Lamp of special advantage

because of the great volumes of light it throws not only on the goods being woven, but directly into the loom harness. There is an entire absence of black shadows.

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Save $468.00

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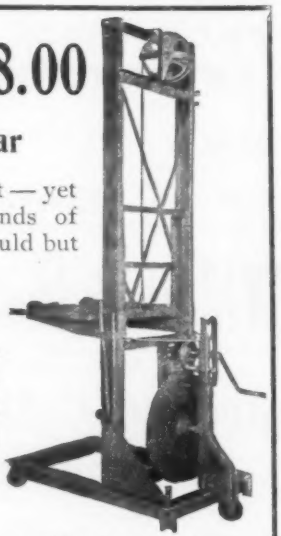
Who would not—yet there are thousands of concerns that could but won't.

Just let us know you are interested and we will do the rest.



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IRON OR STEEL

for Fire Protection and Domestic Service.

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Plans and prices cheerfully given.

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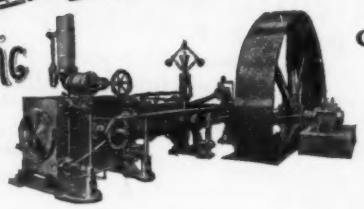

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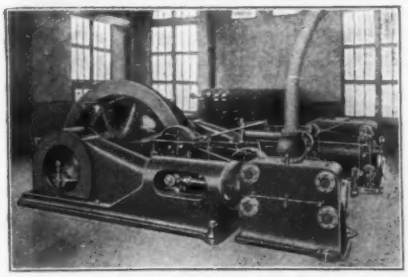
General engine repairs.



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NOTED FOR
RELIABLE SERVICE,
LOW STEAM CONSUMPTION,
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SPINNING RINGS.
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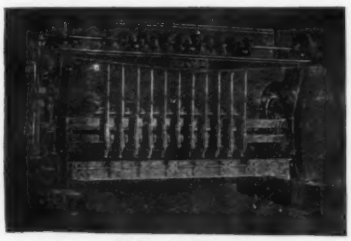
Improved Fulling Mills Washers & Dyeing Machines



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FOR ALL PURPOSES WHERE A NUMBER OF ROWS OF SEAMS ARE REQUIRED

BUILT WITH ANY REQUIRED NUMBER OF NEEDLES

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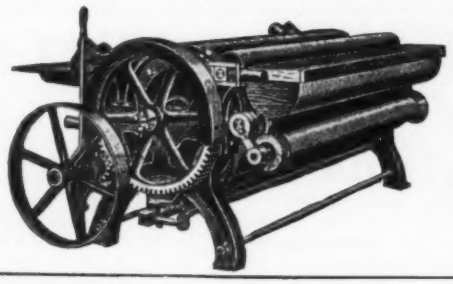

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BREAKS NO BUTTONS.

It is adjustable to all grades, and gives a finer finish than that obtained on any other machine.

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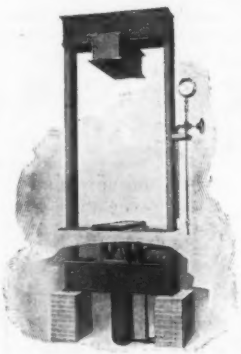

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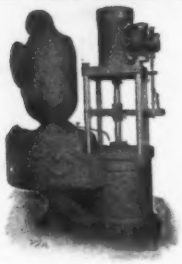

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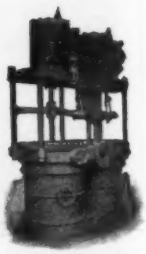

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It gives greater strength and production than any other system.

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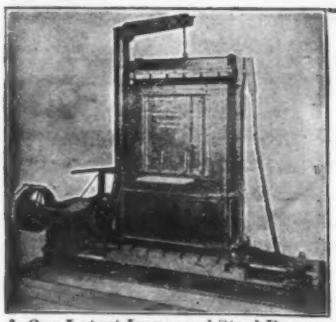

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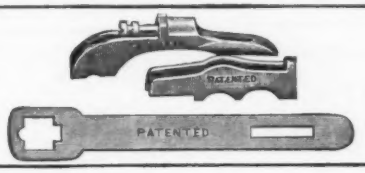

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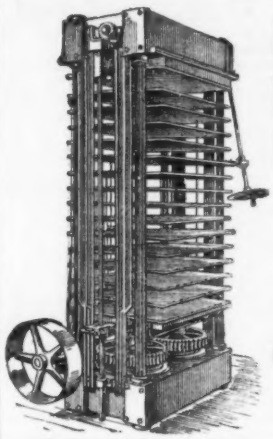

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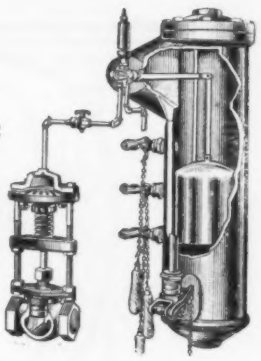

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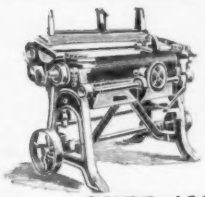

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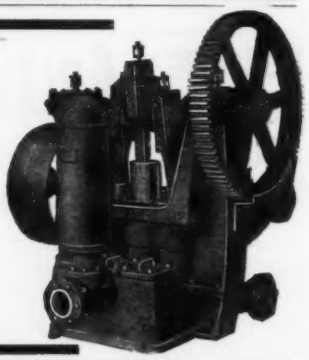

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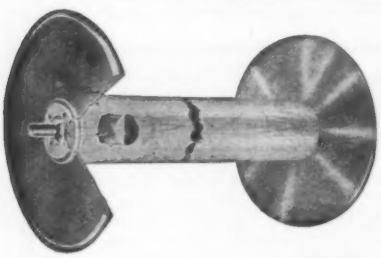

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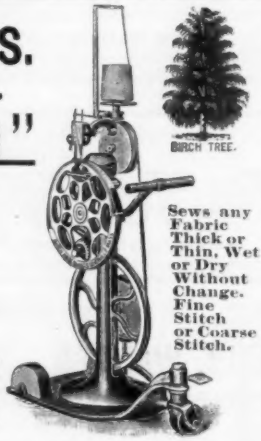

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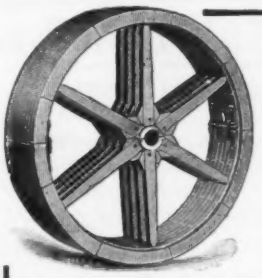

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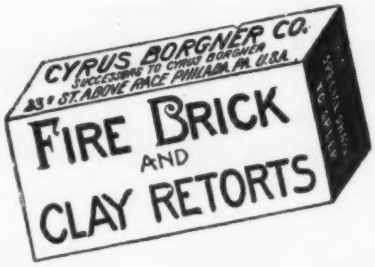

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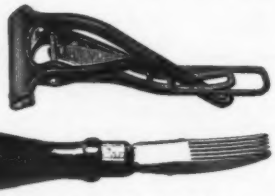

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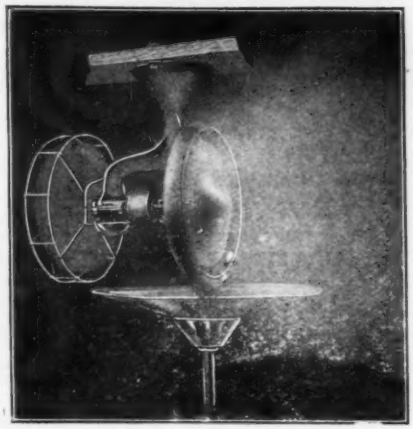

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The Simplest Humidifier Made.

It makes no difference if your pump or air compressor is not large enough to operate additional humidifiers.

The Hygrosso can be installed and operated by belt or motor at a less cost for power than humidifiers operated by pressure systems.

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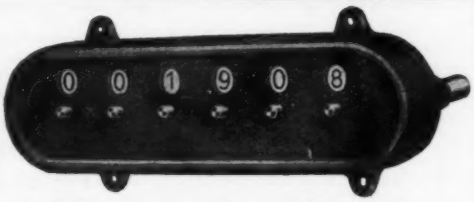

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that will register the output of each machine.

A glance tells how the machines are running —enables you to keep output up and cost down.

used by representative Cotton Mills and Bleacheries. Write for Catalog No. 18.

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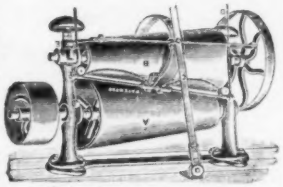
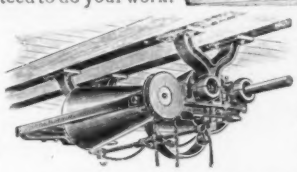
The Evans Friction Cone Pulleys will drive your machines at any desired speed from 1 to 6 by simply pulling a cord.

They are guaranteed to do your work.





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Make a combination that admits good, strong, **FREE** daylight and pure air. Save repairs. Steel. Fireproof. Weathertight.

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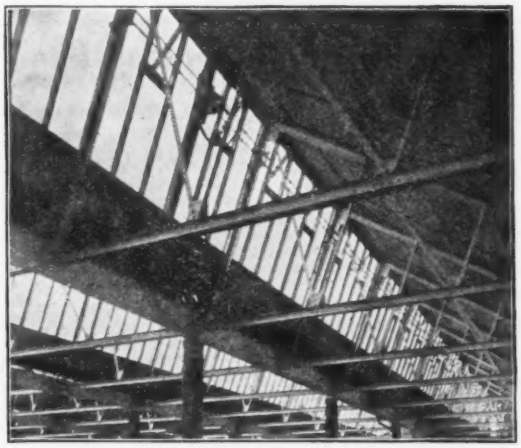

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Especially adapted for Cotton Mills. 25 to 33 per cent more Production Guaranteed. Weight Reduced 33 to 50 per cent. No Leather Covering Bill.

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FEARNAUGHT PICKER.

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BODY—Vulcanized Fibre. SIDE SEAM—Riveted with patented Clinched Rivets. RINGS—Tinned Steel, Brazed Joints, Curled Edges. BOTTOM—IXXX. Tin Star Corrugation; Fastened without the use of nails or screws, will not crack, warp or shrink and cannot come out. FINISH—Coated inside and out with moisture proof coating, handsome and smooth. WEIGHT—About one half pound per inch diameter. SIZE—All cans to any exact size, perfectly round any true. DURABILITY—Superior to any other can.

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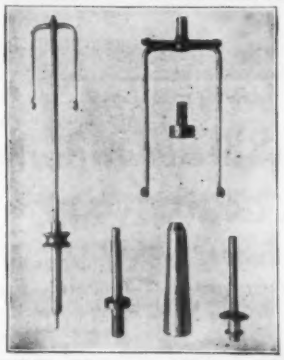

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Caps
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and all parts for Worsted and Silk Spinning.

Spindles and Flyers of every description promptly repaired.

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Portable Factory Sewing Machine—in labor and material, both wet and dry sewing, since 1870. That's why it leads in sales. Send for booklet

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Light

What the men in the mill have to say about it.

"There is nothing in the illuminating market today that will beat the Nernst lamps. The best work in the entire plant is done in Factory No. 1, which is fitted throughout with three-glower Nernst lamps.

The Nernst lamps have given perfect satisfaction since the day of the first installation. *The Tungsten isn't in it for a minute with the Nernst when it comes to factory lighting.*"

"The Nernst lamps give an exceptionally fine light. It is the best of any installation in the mills. The operatives in the inspecting and jackspooling rooms, where the best light obtainable is necessary, say that the *Nernst lamps are the very best they ever worked under.*"

"Nernst lamps are very satisfactory, and are the best that can be obtained for the purpose for which they are used in this plant. *They are far superior in every way to the Tungsten.*

We have recently installed your latest model in several trying places and find it all that is desired as far as color, diffusion and steadiness is concerned, and we think it more economical after installation than any lamp we know of.

"For use in factory lighting, the Nernst lamps have proven themselves to be the best on the market, and cannot be excelled.

"The Nernst lamps are fine, the repair cost is low, the men working under them like the light, and although we have other lights, *the Nernst gives the best satisfaction.*

Send for the names of the men who made these statements. There is only one lamp that is better for mill lighting than the Nernst and that is the Westinghouse Nernst, representing our latest improvements.

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Offices in other principal cities.

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C-W squirrel-cage induction motors make good in textile mills. So do **C-W** engineers. See Bulletin 105 Y.

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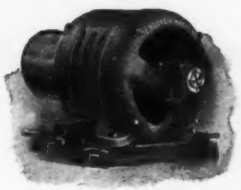
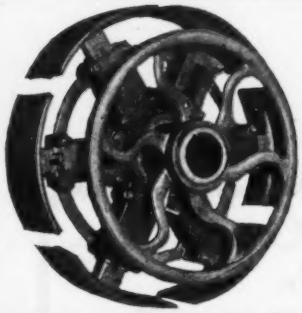


1-4 to 250 H. P.



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Adapted to use in all places where relative speeds of connecting machines need to be corrected. Diameter of pulley is instantly and easily adjusted by means of the handwheel. Because all parts are interchangeable and are manufactured in large quantities the cost of a very superior expansion pulley is greatly reduced.

Note the sizes and prices:

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23in. to 27in. "	37.50	32in. to 36in. "	47.50

All interchangeable parts carried in quantities and all orders fill'ed the same day received. By means of interchangeable bushings pulleys can be fitted to any shaft.

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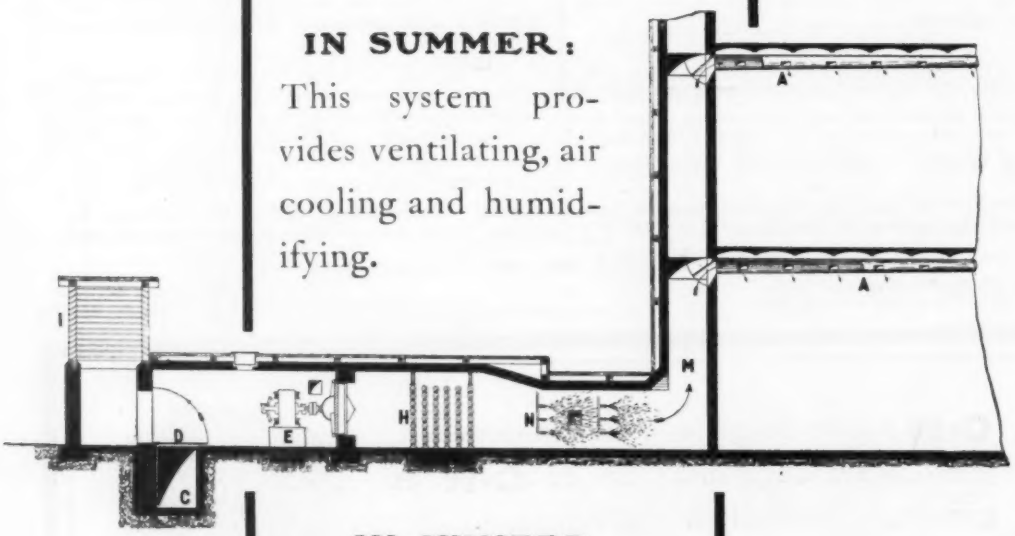
KOERTING HUMIDIFYING SYSTEM

IN SUMMER:

This system provides ventilating, air cooling and humidifying.



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This system provides ventilating, heating and humidifying.

Perfect Humidifying; Low Operating expense.

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The New Bristle Cloth Stretcher Sells Itself

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Dyers of Cotton Piece Goods, Hosiery and Yarns.
1475 Whalley Avenue

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American Finishing Machinery Co.,

141 Milk St.,

Boston, Mass.

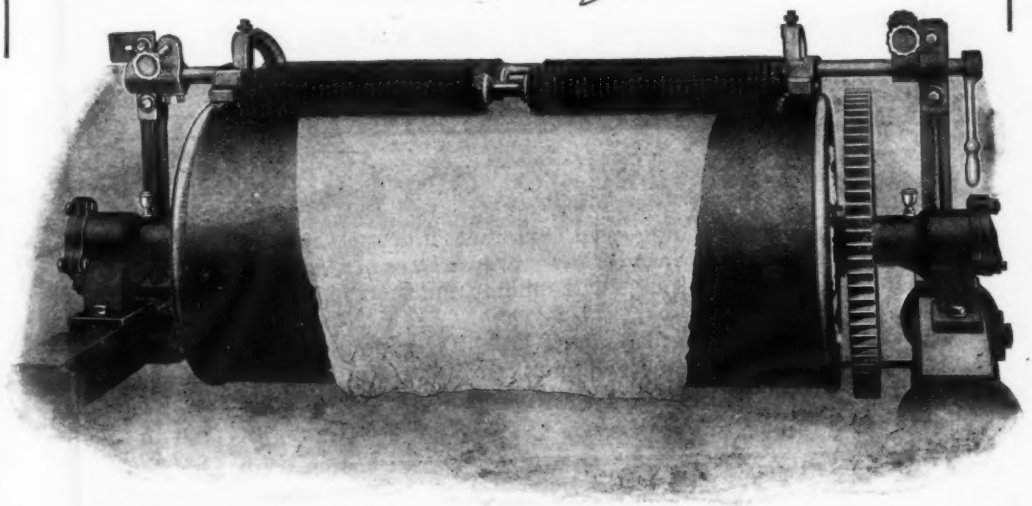
Gentlemen:-

We are enclosing you herewith our check for $333.00 in settlement of your invoice of July 2nd, for the brush cloth stretcher. As this machine has proven very satisfactory to us we wish to order another one, and will therefore ask you to send us a diagram so that we may send you specifications.

Very truly yours,

THE POND LILY CO.

Dict. WCH



(Double Brush Machine Working on Top of Can)

All we ask is a chance to prove that this new, patented stretcher is supreme in stretching efficiency, on all fabrics, starched or unstarched; in the superior finish it gives, and its safety—the machine will take care of the sale. Let us figure on your requirements.

Sold on approval.

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The Oldest of All Dyestuffs

More indigo is used than of all other products for coloring and at least 95% of the world's production of indigo is used in the fabrics made for the masses, which is ample proof of its dyeing and staying qualities.

Expert Help to Manufacturers

One little mistake in the Dye House can easily turn first-class goods into "seconds" and cause the loss of hundreds of dollars. Experience covering the entire range of Dyeing is rarely found in one man. For that reason our expert specialists may be able to help you. If you think so, we should be glad to render what service we can, gratis, either by mail or a visit to your plant.

To Test Indigo on Cotton

Put a little piece of Indigo-dyed cotton into a dry test tube or on a porcelain plate aud heat very slowly over a Bunsen Gas Burner or some other flame. The Indigo will sublime and show heavy purplish fumes.

Another very simple test is to put a little of the Indigo-dyed cotton into a porcelain dish or on a white porcelain plate and light it with a match and let it burn. If Indigo is present the porcelain will show a greenish blue film.

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TEXTILE WORLD RECORD

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We solicit correspondence on textile subjects. Articles accepted will be paid for. Name and address must always be given, not necessarily for publication. Subscribers are invited to make free use of our Questions and Answers Department; correspondence is strictly confidential.

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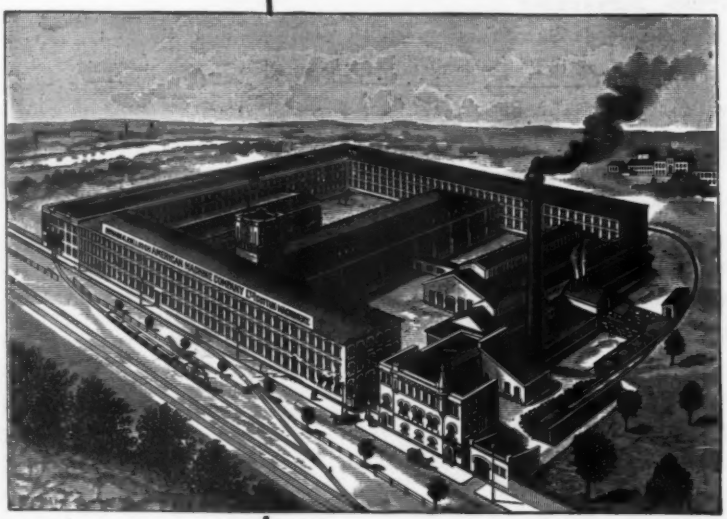

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TEXTILE WORLD RECORD

COMBINING

The Textile World and Textile Record.

VOL. 37 (NEW SERIES.) September, 1909 No. 6

Monthly Comment.

Proposed Combination of Cotton Spinners.

Short time in Lancashire cotton spinning mills is not having the desired effect of bringing the price of raw cotton down and the price of cotton yarn up so as to give the spinner a profit. As a result it has been proposed to form a combination of ring spinners, who are to bind themselves under heavy penalties not to sell yarn below the prices fixed by the combine. These prices are to vary in accordance with the price of cotton, so as to give the spinner an adequate margin between the cost of the raw material and the selling price of the yarn.

Preliminary conferences of the promoters of the combination have been held, and it is believed the plans will be carried out if the present unsatisfactory trade conditions continue. English spinners have been losing money since the recent advance in cotton and are forced to adopt some means of relief. There are difficulties in the way of forming a combination.

Chief among these difficulties is that such an agreement to hold up prices by English spinners only will give their foreign competitors a long coveted opportunity to enter markets now dominated by Lancashire. Japan, Italy, Germany and several other formidable competitors would be quick to profit by a Lancashire agreement to maintain prices, and with their cheaper labor would be able to gain a coveted foothold in foreign markets. Nevertheless the combination of Lancashire spinners illustrates the development of trade organization to make certain the transference of the burden of high prices for raw material to the shoulders of the consumer.

Worsted Tops in Australia.

In our issue of February, 1908, we called attention to plans then in the initial stage to establish a mill near Sydney, Australia, for the manufacture of worsted tops. The Australian government had provided for a subsidy to be paid to worsted combers for a period of five years at the rate of 3 cents a pound for the first three years and 2 cents a pound for the remaining two years. The combing mill planned at that time has since been built and put in operation at Botany, N. S. W., by F. W. Hughes, Ltd. The following account of the mill is taken from a recent issue of Dalgety's circular:

All initial difficulties have been overcome, and wool tops are now manufactured for export at the Botany Combing Mill, of F. W. Hughes, Ltd. The difficulties were considerable, but the success in making tops fully equal, if not superior, to the tops manufactured in the United Kingdom, on the Continent or United States, is ample compensation for initial troubles inseparable from any great undertaking. With wool at first hand, an excellent water supply, a clear atmosphere, warm climate and combing machinery of the very latest

type, an excellent product would naturally be expected. But there were many prejudices and obstacles to be overcome. However, coming at a time when the wool position is so strong and tops materially advancing in price, the reception accorded the splendid samples manufactured at Botany, New South Wales, bids fair to lay the foundation of the wool combing industry in Australia upon a firm basis. So excellent have been the parcels of tops shipped that the output of the mill has been sold three months ahead.

For many years past woolen fabrics have been produced at the various mills in Australia, and, more recently, worsted fabrics. Thus, wool has been manufactured into fabrics practically at the seat of production.

At present about 1,400 pounds tops are produced in eight hours, and about 1,000,000 pounds weight can be turned out per annum, absorbing about 7,500 bales wool in the grease. It is proposed to add to the plant as soon as the machinery can be imported. Thus by the end of the year the mill will be capable of producing 3,000,000 pounds weight of tops, using 22,500 bales of wool per annum. The total sum available under the Bounties' Act for wool tops is £50,000, and the maximum amount obtainable is £10,000 per year.

The Australians believe that a great combing industry can be established in their country, which will in time convert the greater part of the Australian wool clip into worsted tops to be distributed to the worsted mills in all parts of the world.

Weighting Mercerized Yarn.

Complaints have been general in Germany that mercerized yarn offered for sale has been artificially weighted, usually with magnesium chloride. The difficulty became so serious that recently buyers of mercerized yarn met at Leipzig to voice their protest against the practice and adopt means for putting an end to it. One of those present stated that some years ago he found that a large lot of wool yarn he had bought had been weighted, that he sued the seller and recovered damages, with the result that no more trouble was encountered with artificially weighted wool yarn after that. He advised the same remedy for the weighting of mercerized yarn.

It was stated in extenuation of the practice that the bleaching and mercerizing processes caused a loss of about 10 per cent. by weight and that the artificial weighting was intended only to restore the yarn to its original weight. It was, however, the unanimous opinion of those present at the Leipzig meeting that the practice should be stopped and strong resolutions were adopted, condemning it and advising buyers to insist on a guarantee that the yarn to be delivered on contracts shall be free from weighting material.

Cotton Direct to Manchester.

The cotton trade of Manchester in general and the directors of the Manchester ship canal in particular are making strenuous efforts to increase the shipments of cotton from this country direct to Manchester, instead of Liverpool. The Canal Company's annual report, recently made public, contains this reference to the problem:

A word about cotton. During the present season, which began on September 1, they received 444,000 bales of American cotton, against 374,000 in the preceding season—an increase of 70,000 bales. At first sight this looked extremely satisfactory, but on analysis it was not so. They had a larger share altogether, because the shipments to Great Britain out of the large crop which was raised, had been very much larger, but their percentage had shown no increase for some years past. It showed no increase last year. They hoped, of course, for a larger share this year, helped by their friends of the Manchester Cotton Association.

"I wish to take advantage of this opportunity," Mr. Bythell said, "to say that spinners of American cotton have power to bring this about if they will exercise it. They have only to be determined on two points.

"First, I hope those who import c. i. f. cotton, for example, will insist that it is to go direct by steamer to Manchester docks. There is no reason whatever for listening to the sellers' request that there should be option of shipping to Liverpool, because we had last season, and we shall have during the coming season, always an ample supply of steam tonnage for Manchester at every important exporting port in America.

"The other action I hope spinners will take, and easily can take, is to give preference to Manchester cotton when they are in the market for ready cotton, provided the quality and the price are satisfactory.

"I told you at our last meeting that the Manchester Cotton Association has now stripped the whole of the front of the building, and has got a counter forty-five feet long with plenty of northern light. That has been used to a considerable extent this season, during which the experiment was first made, and I am sure that spinners of American cotton, if they will give any attention to the subject, can see that it is entirely to their interest that they should be determined when they are buying spot cotton to step in and see what

cotton is there for sale in Manchester, in a room where they can compare different samples in one good light. If they will adopt this course we undoubtedly shall see that sellers will be encouraged to lay down larger stocks at Manchester, and I am sure spinners will also say they deserve to have this encouragement."—(Hear, hear.)

Imports of Wool.

The imports of class 1 and class 2 wool for the year ending June 30, 1909, show a decided increase in quantity and shrinkage in the value per pound as compared with the two preceding years.

		1909	1908	1907
Class 1.	Lbs.	142,580,993	45,798,303	82,982,116
	Value total	$29,455,598	$10,278,199	$21,378,304
	Value per lb.	20 2/3 cts.	22.4 cts.	25.8 cts.
	Duty, total	$15,683,909	$5,037,813	$9,128,032
	Duty, ad valorum	53.2%	49%	42.7%
Class 2.	Lbs.	21,952,259	13,332,540	10,671,378
	Value, total	$4,591,559	$3,624,617	$1,280,565
	Value per lb.	20.9 cts.	27.2 cts.	30.3 cts.
	Duty, total	$2,634,271	$1,599,905	$1,280,565
	Duty, ad valorum	57.4%	44.2%	39.6%

The decrease in the value per pound is doubtless due chiefly to the growing demand for foreign wool for the American market, and to the additional fact that the supply of light shrinking wool is not increasing in proportion. As a result American buyers have been forced to buy heavier shrinking wool, costing less per pound and showing a higher ad valorem rate of duty because of the fixed specific duty of 11 or 12 cents a pound.

Exporting Wool Goods.

The American consul at Mannheim, Germany, has discovered what he believes to be an opportunity for our woolen and worsted manufacturers to market their goods in Germany, and sends a report to the State Department, from which this is taken:

> A merchant tailor here who spent 5 years in America states that it is impossible to get the same kind of woolens he did in the United States. He claims that both the German and English goods are softer than much of the American cloth, and that they do not withstand hard wear as well. He says he would be glad to buy American-made cloth if he could get it at the same price he pays for English. The prices paid to the wholesale dealer for English cloths range from $1.90 to $5.24 per meter (1 meter = 1.09 yards). German prices are from $1.19 to $3.33 per meter.

In competing with the German in the German market the American wool manufacturer encounters the following obstacles: 1. The Payne duty on wool, prohibitory on some grades and high enough on all grades to make successful competition with free wool impossible; 2. The higher cost of manufacturing in the United States, due principally to the higher scale of wages; 3. The tariff on wool goods imported into Germany; 4. Greater familiarity of the German manufacturer with the German market.

These reasons remind one of the forty reasons the Irishman had for not betting on the races. The first one was that he didn't have the money. We would not discourage our consul at Mannheim in his laudable effort to extend the foreign market for American manufactures. We hope he will try again and bear in mind that international commerce depends upon something besides demand for goods.

Exhibition at Roubaix.

Plans are well advanced for an international exhibition to be held at Roubaix, France, in 1911. Roubaix is the center of an important textile district included in Belgian and German as well as French territory, and it is expected that the textile exhibits will be one of the most important features of the coming exposition. The exhibition will be held in Barbieux Park, where ample facilities are available.

Silk is the most important industry of Italy, employing some 300,000 people, supplying one-fifth of the world's requirements, and Milan has succeeded Lyon as the world's largest silk center. The majority of the silk, however, is exported in only a partially manufactured form.

The Payne Tariff and Tariff Wars.

The newspapers are discussing the possibility of tariff wars between the United States and foreign countries because of section 2 of the Payne tariff act, which goes into effect on the first of April, 1910. This section is as follows:

Sec. 2. That from and after the thirty-first day of March, nineteen hundred and ten, except as otherwise specially provided for in this section, there shall be levied, collected, and paid on all articles when imported from any foreign country into the United States, or into any of its possessions (except the Philippine Islands and the islands of Guam and Tutuila), the rates of duty prescribed by the schedules and paragraphs of the dutiable list of section one of this Act, and in addition thereto twenty-five per centum ad valorem; which rates shall constitute the maximum tariff of the United States: Provided, That whenever, after the thirty-first day of March, nineteen hundred and ten, and so long thereafter as the President shall be satisfied, in view of the character of the concessions granted by the minimum tariff of the United States, that the government of any foreign country imposes no terms or restrictions, either in the way of tariff rates or provisions, trade or other regulations, charges, exactions, or in any other manner, directly or indirectly, upon the importation into or the sale in such foreign country of any agricultural, manufactured or other product of the United States, which unduly discriminate against the United States or the products thereof, and that such foreign country pays no export bounty or imposes no export duty or prohibition upon the exportation of any article to the United States which unduly discriminates against the United States or the products thereof, and that such foreign country accords to the agricultural, manufactured, or other products of the United States treatment which is reciprocal and equivalent, thereupon and thereafter, upon proclamation to this effect by the President of the United States, all articles when imported into the United States, or any of its possessions (except the Philippine Islands and the islands of Guam and Tutuila), from such foreign country shall, except as otherwise herein provided, be admitted under the terms of the minimum tariff of the United States as prescribed by section one of this Act.

This section adds 25 per cent. to all the rates in the Payne bill and then gives the President the power, in fact directs him, to admit imports at the regular rates without the 25 per cent. being added, when the goods come from such countries as grant to the United States the most favorable concessions granted to any other country. It is doubtful if anyone knows even approximately how this maximum and minimum section will affect the trade of the United States with the rest of the world. That it will create perplexing problems for our government is certain; that it will lead to serious trade wars is possible; and that the results growing out of the enforcement of this section may have a widespread and unexpected influence on public opinion in this country regarding the Payne law, and, consequently, on the life of that law is easily within the limits of the possible.

What the outcome of our maximum and minimum venture will be must be left for the near future to decide. One fact, however, stands out so prominently in connection with the question, that it is worthy of our attention now. The United States is the only nation on earth that can afford to take the risk of such a trade defiance to the world. Such an act on the part of Great Britain, Germany, France, Japan or any other country would spell calamity for the challenger. This is because the United States is so nearly self-contained in production, while other countries are so dependent on outside sources of supply.

This difference in the relative position of ourselves and other countries is well illustrated by our trade with Germany and France, which are the countries most frequently connected with the current predictions of tariff wars. Our account with Germany and France for the year ending June 30, 1906, was as follows:

Imports from Germany.

Cotton manufactures	$16,459,615
Silk manufactures	6,103,545
Wool manufactures	4,895,255
Fiber manufactures	2,987,972
Coal tar colors	5,136,500
Chemicals and dyes	14,079,853
Earthen ware	5,132,278
Glass and glassware	1,655,532
Toys	5,350,010
Metal and manufactures	11,806,808
Leather manufactures	3,174,603
Paper and manufactures	4,341,838
Wool manufactures	1,423,568
India rubber manufactures	1,018,863
India rubber raw	2,961,454

Bristles and hair	1,898,446
Fertilizers	3,092,862
Furs and leather	9,769,120
Hides	5,199,510
Hops	1,765,682
Diamonds and jewelry	1,597,802
Wines, liquors and spirits	2,209,836
Oils	1,459,580
Books, maps, etc.	1,500,131
Cement	713,817
Sugar	1,100,567
Seeds	1,759,784
Tobacco	994,254
Feathers	1,344,172
Musical instruments	865,749
Paper stock	947,318
Sundries	12,396,672
	$135,142,996

Exports to Germany.

Cotton	$101,535,121
Meat and dairy products	28,771,186
Breadstuffs	24,142,625
Copper	17,620,113
Oils	10,267,648
Fertilizers	2,784,992
Naval stores	4,466,640
Furs and fur skins	1,636,956
Hides and skins	692,388
Fish	1,769,086
Fruits and nuts	2,543,757
Oil cake and meal	4,846,657
Seeds	1,493,541
Tobacco	3,749,772
Iron and steel manufactures	7,601,559
Wood	4,814,508
Leather	2,262,194
Cotton manufactures	971,647
Drugs and chemicals	1,469,349
Agricultural implements	2,016,894
Sundries	6,947,145
	$232,403,778

Imports from France.

Cotton manufactures	$13,008,125
Silk manufactures	13,421,039
Wool manufactures	3,589,741
Fiber manufactures	1,144,774
Metal manufactures	3,270,666
Leather and manufactures	3,515,981
Earthenware	1,976,603
Glassware	1,005,115
Paper and manufactures	566,852
Wood and manufactures	853,694
India rubber manufactures	720,275
Brushes	642,938
Chemicals, drugs and dyes	3,803,443
Sundry manufactures	4,319,188
Furs and hides	10,310,583
Diamonds and jewelry	8,988,676
Champagne, wines and spirits	8,306,426
Art works	2,754,109
Feathers	2,529,445
Oils	2,529,918
Sundry raw materials	6,852,217
Foodstuffs	5,151,099
All other articles	9,154,443
	$108,415,350

Exports to France.

Cotton	$45,112,034
Copper	12,792,164
Oil	9,525,304
Provisions and breadstuffs	9,339,423
Tobacco	3,289,114
Iron and steel manufactures	3,341,407
Wood manufactures	3,077,322
Agricultural implements	2,895,243
Cotton manufactures	62,327
Fiber manufactures	29,688
Other manufactures	2,681,333
Sundry raw materials	692,000
Fertilizers	744,441
Furs and skins	218,331
All other articles	2,653,564
	$96,453,755

The more these figures are studied the more is one impressed with the fact that the bulk of what we buy from these countries can be easily obtained elsewhere or made in the United States, while the bulk of what we sell to these countries is needed by them for feeding their people or supplying their industries with raw material, and cannot be easily obtained elsewhere. Our practical control of the cotton supply would alone be enough to place us in a position where the 25 per cent. maximum threat could be safely issued to the world. Forty-one per cent of our exports to France, and 43 per cent. of our exports to Germany consist of raw cotton which these countries must have and cannot get elsewhere. Add to cotton the value of meat products, breadstuffs, copper and oil, and we have 78 per cent. in the case of Germany, and 71 per cent. in the case of France, as the proportion represented by American products which are practically indispensable to the two countries named.

Turning to the list of our imports from Germany and France, we find an entirely different situation. With the exception of one item in the case of Germany, there is not a product bought from either country that we cannot displace by an equally satisfactory substitute either made at home or bought in other countries.

The one exception is the $5,136,500 worth of German coal tar colors. Thanks to our

antiquated patent law the manufacture of these products has been largely excluded from American soil and concentrated in Germany. And this exception to the general rule of American independence can be removed at any time by our providing for the compulsory working of inventions protected by United States patents.

Under these conditions of independence on our side and dependence on the side of France and Germany, it is not likely that either of these countries will resort to a tariff war of retaliation. They have been trained for ages in the school of experience to bow submissively before superior force. The Payne maximum and minimum section will merely supply another to the long series of illustrations of this fact.

Although we can, as far as the result of a trial of commercial strength with any foreign country is concerned, view the enforcement of the Payne maximum and minimum section with entire composure, there are certain domestic considerations which are calculated to give rise to misgivings, regarding the outcome of this maximum and minimum experiment. Foreign nations may not, in all probability will not, engage in an open war of retaliation. They may not admit our products at the most favorable rates in face of the maximum threat of the Payne bill. They may content themselves with letting our maximum tariff rates remain in force without offering the President sufficient inducements to reduce them to the minimum. That would make the Payne maximum rates of maximum interest to the American people.

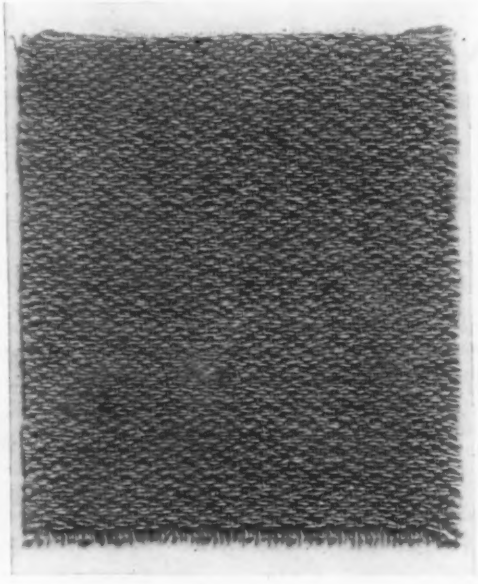
Regardless of individual views as to tariff revision, there are few who will not admit the strong sentiment in favor of revision downwards, and the widespread discontent regarding many of the rates in the Payne bill. If under these circumstances the country should find that the maximum and minimum section has added 25 per cent. to rates already believed to be too high, on any considerable quantity of imports, we would have a political situation at home that would overshadow the trade situation abroad. For this reason both the friends and the opponents of the Payne bill will watch the effect of section 2 of that law with especial interest.

Momie Cloth.

Editor Textile World Record:

Please state what momie cloth is, giving the origin of the term. We would also like to have you give the construction and weave of the enclosed sample of cotton momie cloth, shown at Fig. 1. Raleigh (1095).

Momie cloth is woven with an irregular weave showing no distinct pattern. It is made usually, but not always, with a fine



warp and coarse filling. The cloth used for wrapping Egyptian mummies was made in this way and hence the origin of the name as applied to fabrics of this character.

We have analyzed the sample with the following results:

Warp, 45 1/2 threads per inch, single 19s cotton.

Filling, 46 1/2 threads per inch, single 11s cotton.

Cloth 3 1/2 yards per pound.

The sizes of yarn are for the yarn as it lies in the cloth without allowance for take-up

A Time For Slowing Up in the Wool Market.

To the practised eyes of experienced traders the present situation in the colonial wool trade does not appear very unlike that which prevailed about this time of the year in 1907. Then as now home and Continental buyers were on their way to attend the opening sale of the season at Adelaide, and the prices of all classes of merino wool and tops were high and therefore dangerous. While the European buyers were at sea in 1907 the value of wool and tops at all consuming markets both at home and abroad continued to advance.

When the September auctions opened in London a further advance was established in quotations, and the natural outcome of all this was that most ridiculous prices were given at the opening auction at Adelaide, fol-

EXPORTS AND IMPORTS OF RAW COTTON AND WASTE.

Lbs. in units of one million. Value in units of $100,000.

Year Ending June 30	Exports.									Imports.				
	Sea Island.		Other.		Total.			Cotton Waste.		Raw Cotton.			Cotton Waste.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Value. per lb.	Lbs.	Value.	Lbs.	Value.	Value per lb	Lbs.	Value.
1890	9	23	2462	2486	2471	2509	10.15	..	..	8.6	13.9	16.16	.	..
1891	14	31	2893	2876	2907	2907	10.00	..	..	20.9	28.2	13.49	..	..
1892	19	16	2926	2568	2945	2584	8.77	..	..	28.7	32.1	11.18	..	..
1893	8	17	2204	1870	2212	1887	8.53	..	..	43.4	46.9	10.80	1.9	.8
1894	14	29	2669	2080	2683	2109	7.62	..	..	27.7	30	10.83	2.7	.9
1895	15	28	3502	2021	3517	2049	5.82	..	..	49.3	47	9.53	2.9	1
1896	19	38	2316	1862	2335	1900	8.13	..	..	55.3	66	11.93	6	2.1
1897	21	41	3082	2268	3103	2309	7.12	..	.	51.9	59	11.36	5.3	1.7
1898	16	28	3834	2277	3850	2304	5.98	19.1	7.9	52.7	50	9.48	6.7	1.5
1899	14	24	3759	3072	3773	2996	5.55	21.1	8.3	50.2	50.1	9.98	6	2.1
1900	18	30	3082	2388	3100	2418	7.80	38.6	17.7	67.4	79.6	11.81	7.9	2.4
1901	11	22	3320	3137	3331	3137	9.41	50.6	26.3	47.0	68.0	14.46	6.2	1.9
1902	12	24	3488	2881	3500	2906	8.30	42.9	16.4	98.17	117.1	11.89	14.3	5.0
1903	20	40	3522	3121	3543	3161	8.92	49.1	21.7	75.40	109.7	14.41	23.2	8 0
1904	13	31	3049	3676	3062	3707	12.01	52.7	28.2	48.84	85.4	17.47	20.8	8.4
1905	16	33	4288	3765	4304	3790	8.82	53.9	24.7	60.5	94.1	15.57	24.3	12.4
1906	16	33	3617	3977	3634	4010	11.03	37.8	18.5	70.9	108.8	15.33	26	13.6
1907	7	20	4519	4800	4524	4820	10.65	46.0	23.6	104.7	199.3	19.03	22.9	10.4
1908	12	33	3804	4344	3816	4377	11.47	45.8	26.3	71.0	141.7	19.95	10.7	4.45
1909	10	20	4438	4153	4448	4174	9 36	41.8	21.3	86.5	136.2	15.74	28.9	12.2

EXPORTS AND IMPORTS OF MANUFACTURED WOOLENS.

Value in units of $100,000.

Year Ending June 30.	Exports—Value.						Imports—Value.							
	Carpets.	Dress Goods.	Flannels and Blankets.	Apparel.	Other.	Total.	Carpets.	Cloths.	Dress Goods.	Shawls.	Clothing.	Knit Goods.	Other.	Total.
1890	.067	....	.409	3.179	.719	4.374	7.5	161.4	242.0	10.1	18.4	19.8	66.2	525.4
1891	.184	....	.265	4.240	.502	5.191	13.7	120.3	182.4	7.2	18.6	12.5	39.7	394.4
1892	.093	....	.244	2.689	.649	3.675	12.9	127.6	164.7	3.5	14.8	11.6	12.1	347.2
1893	.115	...	.242	2.224	.679	3.260	15.8	151.2	164.8	2.8	11.7	14.1	12.0	372.4
1894	2.500	....	.387	3.172	1.685	7.744	9.6	67.6	85.8	1.6	8.6	10.0	7.2	190.4
1895	1.610	...	.498	3.161	1.432	6.701	13.6	163.0	144.0	2.0	10.0	9.4	11.8	353.8
1896	2.252	....	.370	3.653	2.860	9.135	8.9	218.9	199.3	4.5	13.0	25.4	27.4	497.5
1897	1.895	....	.573	2.858	3.150	9.476	7.8	170.1	107.9	4.6	9.8	25.3	27.0	412.4
1898	1.612	.414	.474	4.290	4.074	10.89	17.9	39.6	60.4	.4	7.6	3.9	9.6	139.4
1899	.811	.109	.427	5.388	3.679	10.47	17.6	39.1	59.1	.5	8.3	6.3	5.6	136.5
1900	1.150	.244	1.002	5.654	4.485	12.54	27.5	51.3	58.7	.8	9.9	5.0	6.3	159.5
1901	1.051	.082	1.230	8.060	5.005	15.43	27.0	39.6	53.7	.8	11.7	4.1	5.3	142.1
1902	.867	.070	.883	8.521	4.780	15.12	34.4	48.0	64.0	.5	13.3	5.7	5.2	171.4
1903	.579	.074	.481	12.908	3.187	17.22	37.5	48.6	75.1	.5	19.2	6.7	4.7	195.
1904	.509	.078	.105	14.577	3.663	19.87	27.9	41.5	82.0	.5	13.0	5.1	5.2	175.2
1905	.646	.155	.815	16.244	2.488	20.35	28.7	39.7	86.1	.6	13.7	2.2	5.4	178.2
1906	.573	.164	.724	16.184	3.549	21.19	46.4	51.6	100.5	.5	16.3	2.7	7.	225 9
1907	.577	.056	.549	16.887	4.319	22.38	44.3	57.3	92.4	—	16.7	2.1	6.0	218.8
1908	.630	.136	.350	17.178	3.931	22 19	27.9	48.6	92 2	—	16.2	.35	7.3	192.6
1909	.666	.138	.493	14.201	4.220	19.72	40.3	47.8	67.6	—	14.2	.6	6.8	177.3

lowed by equally ridiculous ones in all the other Australian selling centres. When marks and prices were cabled home the cooler heads among users knew at once that operators in the Commonwealth markets were running tremendous risks. As a matter of fact their losses were colossal, and it will be strange indeed if the sufferers have already forgotten the punishment they then received.

The season 1908-9 was the exact antithesis of the season 1907-8. Prices were extremely low in the colonial markets, and importers have made very large profits. It looks as if the desire to repeat such operations were about to lead buyers into a repetition of the mistakes committed two years ago. Experience has proved that the only safe basis for legitimate speculation in the colonial wool trade is low prices. When values are high, as at present, there is nothing left to go for, and the wise consumer goes strictly from hand to mouth. An old West Riding stapler used to say that "it was

EXPORTS AND IMPORTS OF RAW WOOL, YARN AND WASTE.

Lbs. in units of one million. Value in units of $100.000.

Year Ending June 30.	Exports.		Imports.					
	Wool.		Wool.		Shoddy, Noils, etc.		Yarn.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
1890	.231	.335	106.3	152.6	5.0	20.5	3.5	19.9
1891	.291	.394	129.3	182.4	1.2	4.3	2.0	11.9
1892	.202	.306	148.7	196.9	.3	.9	1.3	7.5
1893	.091	.148	172.4	210.6	.3	1.1	1.2	6.9
1894	.520	.906	55.2	61.1	.1	.5	.5	3.6
1895	4.289	4.844	192.8	229.9	14.1	19.8	2.4	11.7
1896	6.945	8.559	228.4	315.0	18.7	26.5	2.0	10.5
1897	5.271	6.199	366.6	567.5	49.9	69.3	1 8	9.6
1898	.121	.180	132.8	167.8	5.3	6.9	.3	1.9
1899	1.683	2.373	76.7	83.2	.3	.7	.2	1.1
1900	2.200	3.872	155.9	202.6	.4	.9	.2	1.3
1901	.200	.240	104.0	125.2	.6	1.8	.2	1.5
1902	.123	.133	166.2	177.1	.2	.6	.4	1.9
1903	.518	.718	177.1	221.5	.3	.9	.3	1.9
1904	.319	.371	173.7	248.1	.2	.5	.1	1.1
1905	.123	.150	249.1	462.2	.2	.8	1	1.2
1906	.192	.290	201.7	390.7	1.2	4.3	.2	1.6
1907	.214	.488	203.8	415.3	.6	2.7	.1	1.5
1908	.182	.421	125.9	236.6	1.2	1.2	.2	1 5
1909	.028	.047	266.4	451.7	.5	1.4	.3	2.3

EXPORTS AND IMPORTS OF MANUFACTURED COTTONS.

Value in units of $100,000.

Year Ending June 30	Exports — Value.					Imports — Value.							
	Colored.	Uncolored.	Apparel.	Other.	Total.	Colored.	Uncolored	Apparel	Laces, etc.	Thread.	Knit Goods.	Other.	Total.
1890	29	55	2	14	100	33.7	1.3	3.4	114.5	9	71.5	65.8	299.2
1891	26	93	3	15	137	42.4	1.7	12	105.9	8.6	67.4	59.2	297.2
1892	25	87	4	16	132	45	1.4	12.6	112.5	6.6	58.3	46.7	283.1
1893	28	63	5	22	118	55.4	2.6	16.8	127.4	7.6	63.9	61.8	335.5
1894	38	76	5	24	143	33.8	1	16.6	80.2	3.3	43.6	45	223.5
1895	35	70	5	28	138	54.3	1.2	27.7	116.9	6.6	65.4	59.9	332
1896	34	95	7	32	168	49.2	1.8	26.8	108.8	8.7	61.9	67.1	324.3
1897	48	125	9	29	211	44	2.7	26.3	125.7	6.5	56	83	344.2
1898	41	92	9	25	167	53.1	1.2	10.5	117.7	6.9	40.3	42.9	272.6
1899	52	138	13	30	233	66.5	1.1	10.3	145.5	8.5	43.4	45.3	320.6
1900	48	132	16	37	233	81.6	3.6	12.4	192.1	21	47.2	55.3	413.2
1901	66	76	17	33	192	59.2	2.0	15.3	202.3	17.5	55.0	51.4	402.7
1902	74	185	20	34	313	69.3	.9	16.5	224.5	19.2	53.6	60.4	444.4
1903	84	169	26	30	309	90.1	1.5	22.5	251.1	24.2	61.6	73.6	524.6
1904	54	92	27	34	207	81.4	1.5	25.0	248.4	22.6	60.4	55.6	494.9
1905	73	339	34	35	496	77.9	1.5	23.8	259.1	22	61.5	43.2	409.7
1906	69	363	43	36	510	117.2	2.1	29.1	340.2	26	72.2	43.5	630.3
1907	75	156	47	35	293	127.2	2.8	37.7	397.5	35.8	86.7	39.4	727.1
1908	58	84	47	31	271	120.8	3.4	41.9	346.1	39.2	90.3	52.	683.7
1909	72	145	10	70	297	99.	2.9	27.2	343.7	33.1	69.2	45	620.1

not necessary to go to Australia to buy dear wool, for that could be done anywhere at any time." Indeed, he made it a rule not to send a representative to the colonial markets when wool was dear, and especially did he avoid doing so when the previous season had been one during which importers had made big profits.

There was some excuse for the folly shown by buyers in the colonial markets during the season 1907-8, for there had been seven fairly prosperous years for importers since the disastrous importing season 1899-1900, but it will be strange if after so short an interval another blunder like that committed two years ago should be perpetrated during the coming Australian and New Zealand season.—Manchester Guardian.

NEW STYLES IN COTTON GOODS.

BY J. W.

Figs. 1 and 2 are new and neat styles in fancy shirtings of good quality. Figs. 3 and 4 show the weave for the colored threads, the white ground being plain upon which is woven cords by drawing 3 or 4 threads together in 1 dent of the reed, or by weaving matting in the center of the white ground. The colored or figure threads are crammed in the reed. Particulars for a good quality are: 40 dents per inch, 2 threads in 1 dent, 36s Egyptian warp, 80 picks per inch, 36s Egyptian for the filling. In some cases fast bleaching colors are used upon grey grounds and are bleached and finished afterwards.

Fig. 5 is a mercerized cloth and the peculiar feature is the large filling spots woven upon a plain ground. Fig. 6 gives the spot weave which may be placed in various ways on the ground, alternate, in satin, broken or twill form. This cloth is woven grey, bleached and mercerized with a silk finish. Fine makes of cloth from Egyptian yarns are desirable.

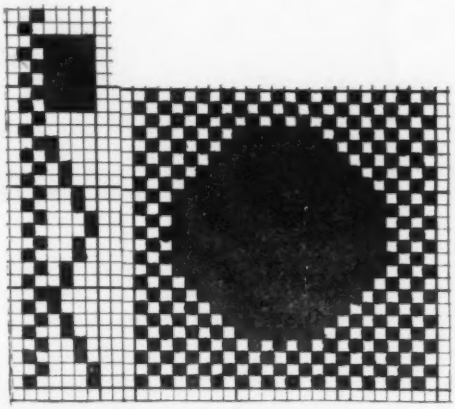


FIG. 3. FIG. 6.

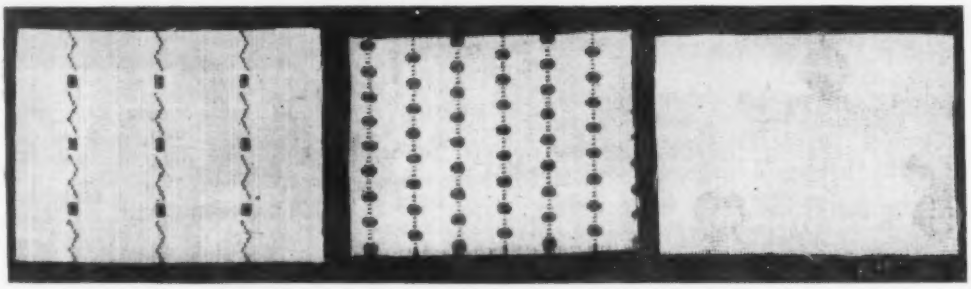


FIG. 1. FIG. 2. FIG. 5.

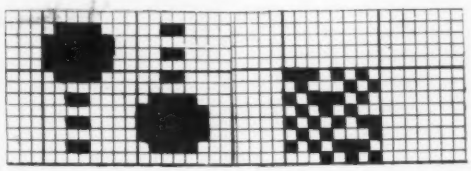


FIG. 4. FIG. 15.

Fig. 7 is a fashionable style for ladies' dress goods, the net weave giving a pleasing effect upon light colors of ground, upon which various colors of chintz print are woven in stripe. The ground weave is plain.

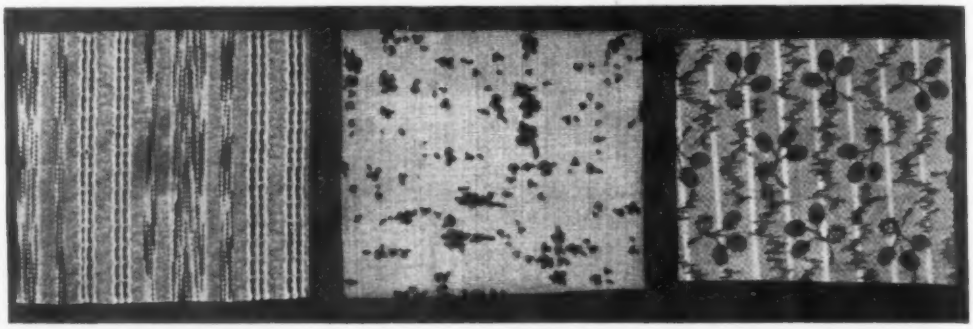


FIG. 7. FIG. 8. FIG. 9.

The net weave is produced by two coarse threads twisting round the filling every four picks, two empty dents being left between each pair of threads.

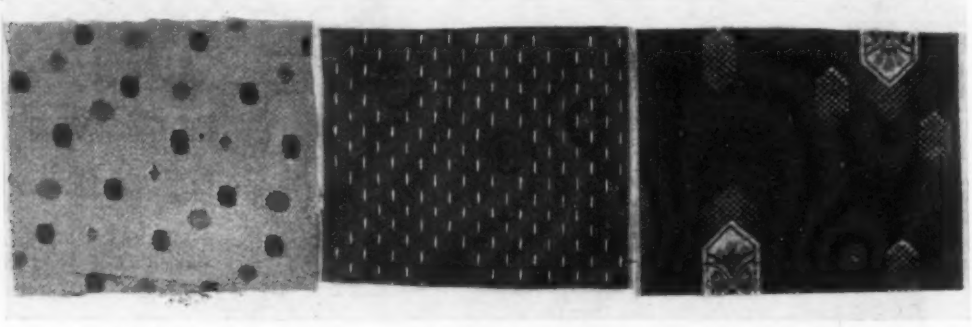


FIG. 10. FIG. 11. FIG. 12.

Fig. 8 is a fashionable style for dress goods in woolen delaines. These mottled effects are good in the various colors on cream or white grounds, or with dark colors of ground and the "mottled" effect in white. Light cloths are very suitable.

Fig. 9 shows one of the small neat print effects such as are desired at present for various uses. The coloring for this style are light blue grounds with white or navy blue stripes, the floral, or figure being in a dark shade of sky blue. In some cases a light green is used for ground, white for

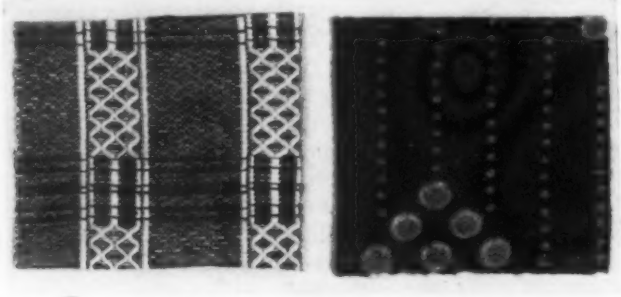


FIG. 13. FIG. 14.

stripe, and dark green for figured effect, which gives a rich blended design.

Fig. 10 is a new style produced with an Egyptian cotton warp, the filling being silk or fine mercerized cotton. The spots of black, or other color, are produced by extra weft, which is allowed to float behind the cloth between the spots. Next spots are also woven on the tan, white, or any color of ground.

Fig. 11 is produced in the same manner

FIG. 16.

as Fig. 10 with the exception that the spots are all produced by the filling. On the ground are white threads weaving in matting order to give a more pleasing appearance.

Figs. 12 and 13 are two new styles in printed flannelette cloths, a style much in favor for blouse and dress goods for common wear. These cloths are produced by having a reed say 20 to 30 dents per inch, 16s to 24s warp, and roving filling from 5s to 8s, which covers the warp threads, especially after being raised.

Fig. 14 is a very effective style, the doup and stripe effect on the oatmeal ground, Fig. 15, being a new departure. Only one doup is required, the threads being drawn backwards alternately. The check effect also gives a fuller appearance. Various methods of douping on colored grounds with the oatmeal weave are desirable.

Fig. 16 is a new style for dress goods and is popular in both linen and cotton fabrics. The fancy weave is produced by extra warp upon a plain ground. On each side of the fancy stripe a few threads are hemstitched, which gives an open effect adding much to the novelty of this class of goods. Large patterns are in demand, the usual styles of colored ground and fancy stripe being made.

THE NATIONAL ASSOCIATION OF COTTON MANUFACTURERS.

As previously announced, the meeting of this Association will be held at the Mount Washington Hotel, Bretton Woods, N. H., on Wednesday and Thursday, September 22d and 23d. The Association will be welcomed to New Hampshire at the opening session by Governor Henry B. Quimby.

It is expected that papers will be read on the following subjects:

Accidents to Cotton Mill Operatives.

Commercial Values of Coal.

Committee on Standard Specifications for Staple Grey Goods.

Cork Inserts as Applied to Textile Machinery.

Housing Mill Employes.

Increasing the Earning Capacity of a Plant.

Legal Relation Between Mill and Agent.

Limitation of American Cotton Production as Effected by the Scarcity of Labor in the South.

Physical and Mechanical Improvements in Sizing Methods.

Pneumatic Service for Cleaning Textile Machinery.

Sanitary Considerations in Ventilating and Humidifying Cotton Mills.

Reinforced Concrete for Mill Construction.

Secondary Textile Education.

Sizing.

Steam Generation.

President Plunkett of the Association will receive the members and guests in the ball room of the Mount Pleasant Hotel on Tuesday evening. The following announcement regarding hotel and traveling arrangements has been issued by Secretary Woodbury:

For the greater convenience of members and their guests, including the ladies, the following arrangements have been made. A special train of Pullman cars will leave the North Station, Boston, at 10.30 a. m. on Tuesday, September 21st, via Lowell, Nashua Junction and Concord, with lunch en route. This train will be due at Bretton

Woods Station at 5.15 p. m., where barges will take the party to the Mount Washington Hotel, which is three-quarters of a mile from the railroad station.

Baggage for this train must be checked in the usual manner and also marked 10.30 Special Train, Boston to Bretton Woods, N. H., using tags which will be furnished with the excursion tickets.

The special train stops en route only for such passengers as have bought tickets in advance, and the schedule at the intermediate stations will be as follows:

September 21: Leave Boston, 10.30 a. m.; Lowell, 11.11 a. m.; Nashua Junction, 11.37 a. m.; Manchester, 12.07 p. m.; Concord, 12.38 p. m. Arrive Bretton Woods, 5.15 p. m.

September 24: Leave Bretton Woods, 1.30 p. m. Arrive Intervale Junction, 2.40 p. m.; Portsmouth, 6 p. m.; Salem, 6.45 p. m.; Lynn, 6.55 p. m.; Boston, 7.15 p. m.

The return trip from Bretton Woods on Friday, September 24, will run through Crawford Notch to Boston, but those who prefer to return by the same route they went should so designate when purchasing their tickets and they will be furnished accordingly. On account of the Interstate Commerce Law, no change of route can be made after reaching the Mountains.

Those of the party who prefer to stop at the Mount Pleasant House nearer to the railroad station can be accommodated, and conveyances will run between the hotels each half hour.

On Friday, September 24, the special train of Pullman cars will leave Bretton Woods Station at 1.30 p. m., and run through the Crawford Notch, and will be due at Boston at 7.15 p. m.

Lunch will be served on Friday at each hotel at 12 o'clock noon, and baggage must be ready at 10 a. m., in order to be checked from either hotel to destination.

Tickets for transportation, care of baggage, Pullman car seats, both going and return and lunch on the train, can be obtained from the Raymond & Whitcomb Company, 306 Washington St., Boston, Mass., 225 Fifth Ave., New York City, 1005 Chestnut St., Philadelphia, Pa., O. E. Jenkins, University Building, Syracuse, N. Y., or M. N. Hennessey, New York Central Railroad Station, Utica, N. Y., who will give information and prices from those or intermediate points, and special Pullman cars will be attached to regular trains if there is sufficient number of applications.

Those wishing for accommodations on the special train should book their names early with Raymond & Whitcomb Company at 306 Washington St., Boston, so that parlor car seats may be reserved, and should purchase their tickets if possible not later than Saturday, September 18.

The price for round trip tickets from Boston to Bretton Woods and return, including Pullman car seats, lunch en route and care of baggage will be $9.07 from Boston and return, and rates from other points will be given on application.

The baggage will be taken in charge by the Mount Washington or the Mount Pleasant Hotel at Bretton Woods Station.

This special train service by the Raymond & Whitcomb Company does not include the accommodations at either the Mount Washington or the Mount Pleasant Hotels, and those attending the meeting by the special trains should engage rooms at least one week in advance from the Mount Washington Hotel, Bretton Woods, N. H., or the Mount Pleasant House, Bretton Woods, N. H., stating whether single or double rooms are desired, and the total number in the party.

The rate per day without bath for each person will be $4.00 at the Mount Washington and $3.50 at the Mount Pleasant. There will be an extra charge of $2.00 a day for each bathroom, irrespective of the number of persons occupying the connecting room or rooms.

The Raymond & Whitcomb Company do not on this trip have anything to do with the assignment or the securing of rooms, as that responsibility at this meeting rests solely with the Mount Washington or the Mount Pleasant Hotels.

PROTECTION IN INDIA.

The low revenue duties on imported manufactures (amounting in most cases to 5 per cent. and on cotton goods to only 3 1/2 per cent.) and the excise taxes on domestic industries, which are a direct burden on the production of Indian goods, supply a standing grievance to the natives of India. They denounce both the low tariff on imports and the excise tax as parts of a scheme invented in Lancashire for the benefit of Lancashire manufacturers. Unable to change the tariff or abolish the excise tax the Indians have resorted to the boycott which is called the Swadeshi movement. Recently some of the British officials in India have endeavored to counteract the Swadeshi agitation by conciliatory addresses in which the underlying principle of the boycott was approved while the harsh and violent methods in its application were condemned. This is a virtual approval of the policy of protection to Indian industries, and is likely to have important results in the future. The British governor recently made an address to the Servants of India Society at Poona, in which he said that both he and the government were advocates and supporters of "honest Swadeshism." That these overtures are looked upon by the natives with considerable suspicion is shown by the following extract from a letter by Jamsetj A. Wadia in the "Times of India," in which he refers to the governor's promise:

We have received the same assurance also from H. E. the Viceroy, for which we are all very grate-

ful. But may I ask what tangible proofs the Government of India has given of the promotion of Swadeshism? Surely, Sir, the retention of the excise duty at the command of Lancashire is not one of them! Have we got technical institutions in India worth the name? Have we any commercial schools and colleges? Have our working men become more efficient through the spread of primary education on an extensive scale? Has our Government sent hundreds of youths to Europe for industrial education like Japan? Has our Government been allowed fiscal freedom, without which there can be no industrial progress? So far as I am able to judge, very little is done for the industries. The first thing the Indian Government ought to do is to remove the excise duties and levy a 10 per cent. import duty instead of the present 5 per cent. one. Then and then only will I consider that the Indian Government is an earnest supporter of honest Swadeshism.

Seasonable Fabrics.

DRESS GOODS.

The condition of the dress goods market continues to be very active in all branches of the trade. Full lines are selling well, in fact some of the larger mills have sold up their entire fall productions, and are using every effort possible to complete their deliveries on time. Several of the selling agents and jobbers anticipated a large fall trade and endeavored to have complete surplus stocks for the opening of the fall season, but these stocks were sold very rapidly during the past few weeks to buyers, who did not place advance orders and were in the market securing what merchandise that could be had for immediate shipments.

The demand for broadcloths is full color assortments with navies and blacks. Pastel shade broadcloths are in demand in qualities costing from 75 cents to $1.50 a yard.

Fine serges, prunellas and panamas hold a very strong position in the market this season and will gain favor as the season progresses.

The manufacturers making homespuns, tweeds, sackings, etc., report that these fabrics are finding a ready sale, especially with the cutting up trade.

Fancy dress goods continue to be in demand for early fall shipments, while stripes predominate over checks and plaids. Fig. 1 shows a 42 inch colored check from A. D. Tuilliard & Co. at 67 1/2 cents a yard. Fig. 2 shows a neat fall suiting effect 42 inches wide from King & Beale at 67 1/2 cents a yard.

Several importers and domestic selling agents are displaying their lines for next spring and summer seasons. From a careful examination of these lines it is very evident that piece-dyed fancies will be favored for the coming season. Hair-line cream

FIG. 1.

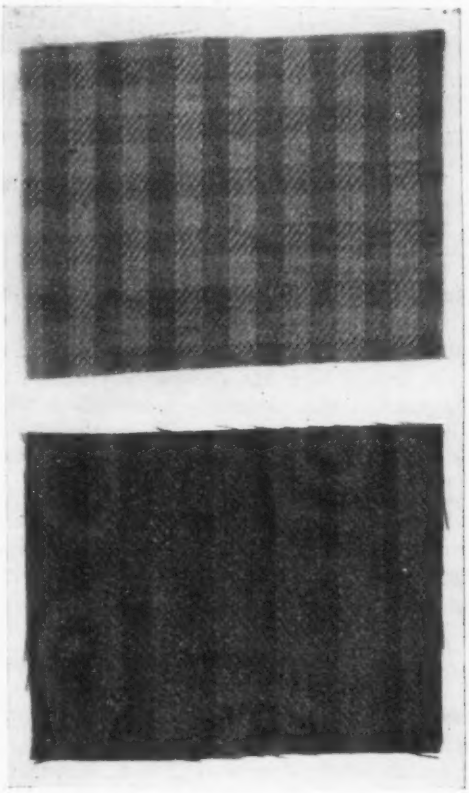


FIG. 2.

serges are being shown in a various number of stripes and weaves.

SILKS.

The early demand for all grades of fall

silks has been one of the features of the silk market during the past month. Manufacturers catering to the larger dealers feel confident that the early fall trade will surpass last year's by a big margin. In a great many instances where buyers had placed their orders for later shipment, they are requesting the mills to make immediate shipments, especially on the more desirable fall fabrics such as diagonals, moires and serges effects, which are steadily gaining favor with the trade in the staple shades of blues, browns, wisteria, grey, smoke, etc. Taking the situation as a whole the manufacturers are confident that they will have a banner fall silk trade.

Satins and satin faced silks continue to gain favor as the season progresses, and from the present outlook it is very evident that the satin vogue will continue throughout the season, while several of the mills report that they are unable to accumulate surplus stocks of these satins.

The demand for black and plain colored taffetas has increased during the past few weeks. Buyers are not placing as large orders as in former seasons, but continue to send in reorders which will amount up at the end of the season.

The unusual demand for moires both in black and colors has been a big feature in the market this season, especially for its millinery trade, in qualities costing from 67 1/2c. to $1.25 a yard.

Rough pongees continue to be favored both for immediate and fall trade in medium priced qualities. Tans and blues are the leading sellers, several manufacturers reporting that they are booking orders for spring deliveries on these rough pongees.

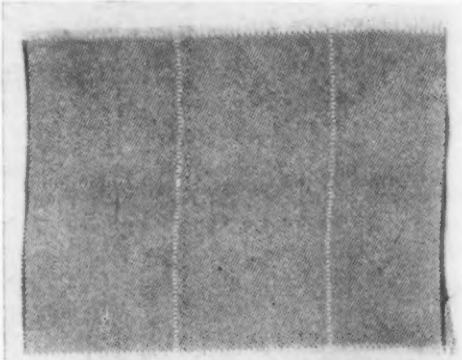
The demand for fancy silks is not as active as in former seasons. Hair line stripe messalines are being favored for early shipment. Fig. 3 shows a neat hair line stripe 20 inches wide from Pelgram & Meyer at 72 1/2c. a yard.

The vogue on silk and cotton mixed fabrics has increased this season. Several manufacturers who were making low end silks have discontinued and are running their looms on the silk and cotton fabrics which are finding a ready market in preference to the low end all-silk fabric.

COTTONS.

Generally speaking the condition of the cotton goods market is better by far than

FIG. 3.



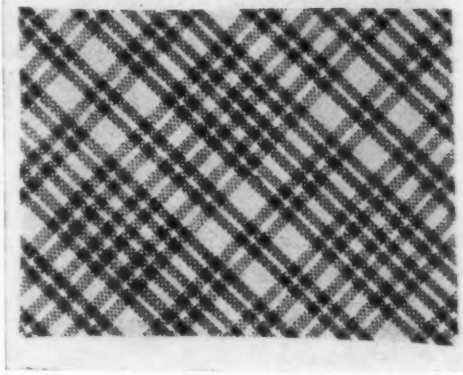


FIG. 4.

they have been for the past year. Confidence is being restored in all branches of the trade, especially on staple domestic 4/4 bleached muslins and wide sheetings, while advances of about 5 per cent. were made on these staples earlier in the season. The trade feel confident that the market will be firm during the coming season, with a tendency towards an advance on staple brands later in the season. The conservative buyers are not only supplying their immediate wants but are also placing their future orders at today's quotations from the differ-

ent mills who are in a position to supply future wants.

The mills that manufacture sheets and pillow cases report that they are sold ahead from 4 to 6 weeks on the more desirable sizes and from the present outlook no relief can be looked for, for some time.

The demand for fall wash goods continues to be very active, especially for plain poplins and cotton pongees in all of the staple fall shades. Clarence Whitman & Co. manufacturers of the celebrated "Soisette" report that they are entirely sold up on their fall productions and have booked a number of large orders for spring shipments.

A number of buyers have visited the market during the past month completing their fall purchases on heavy weight fall goods such as flannels, blankets, etc. Both the manufacturers and jobbers are well satisfied with the business they have received and feel that the season will finish strong on all these lines.

The demand for staple prints has fallen off during the month. This is due to the recent advance that was made on all staple brands, the trade having supplied their wants before the advance. Several of the jobbing houses have accumulated stocks of staple apron ginghams during the past few weeks. These are the first surplus stocks that have been in the market for the past two seasons.

The mills catering to the larger trade on dress ginghams are booking large orders for spring shipments, while the lines that are being displayed consist of a very neat range of styles in new plaid and stripe effects, such as is shown in Fig. 4, 27 inches wide, from Faulkner Page & Co. at 6 3/4c. The trade is taking the staple patterns very freely. These mills anticipate one of the largest spring dress gingham seasons that they have ever had, and are advising the trade to place their orders early to secure prompt shipments when the spring season opens.

Converters of cotton linings are receiving requests for all grades of linings, especially the qualities that can be sold at popular prices.

The demand for sheer white goods continues to be very active. While advances have been made over the opening the trade continues to find a ready market for all staple white goods. Several of the large converters who cater to the advance trade are booking large orders for spring shipments and even at advance prices over last season. These converters feel that the coming season will be a banner white goods season. Mercerized jacquard waistings are in big demand for early spring shipments, striped effect being favored, with small staple dots and figures in their usual demand.

PLAN OF A WEAVING MILL.

The accompanying drawing shows the plan of a recently projected German weaving mill. The building is one story with Sequin-Knobel skylights as shown. It is planned for 120 looms and to permit of easy enlargement. Fig. 4 shows the ground plan, at one end of which is the weave room containing the looms. Adjoining the principal entrance, G, is the main office, F, next to which is the store-room, E. The middle room, C, is used for spooling, warping and drawing-in. The adjacent room, B, is for the sizing machines. The boilers are located in the building, H, adjoining which is the wardrobe and toilet rooms. The iron posts supporting the roof in the weave room are 23 ft., 9 in., apart one way, and 12 ft., 9 in., the other way.

The water from the roof is carried away by conductor pipes running through a number of the posts. The ventilators in the roof are equipped with a device by which they can be opened or closed by a person standing on the floor.

The yarn is first spooled and warped in the room, C, then taken to the sizing machine in room, B, after which it is returned to room, C, where the warps are drawn in and then sent to the weave room, A. The 120 looms are of two widths, 40 inches and 88 inches. The front of the mill, shown at Fig. 1, is divided into 19 bays as shown.—Uhland's Technische Rundschau.

In 1800 the population of the United States was twenty-five times as large as that of Canada; in 1904 only thirteen times as large.

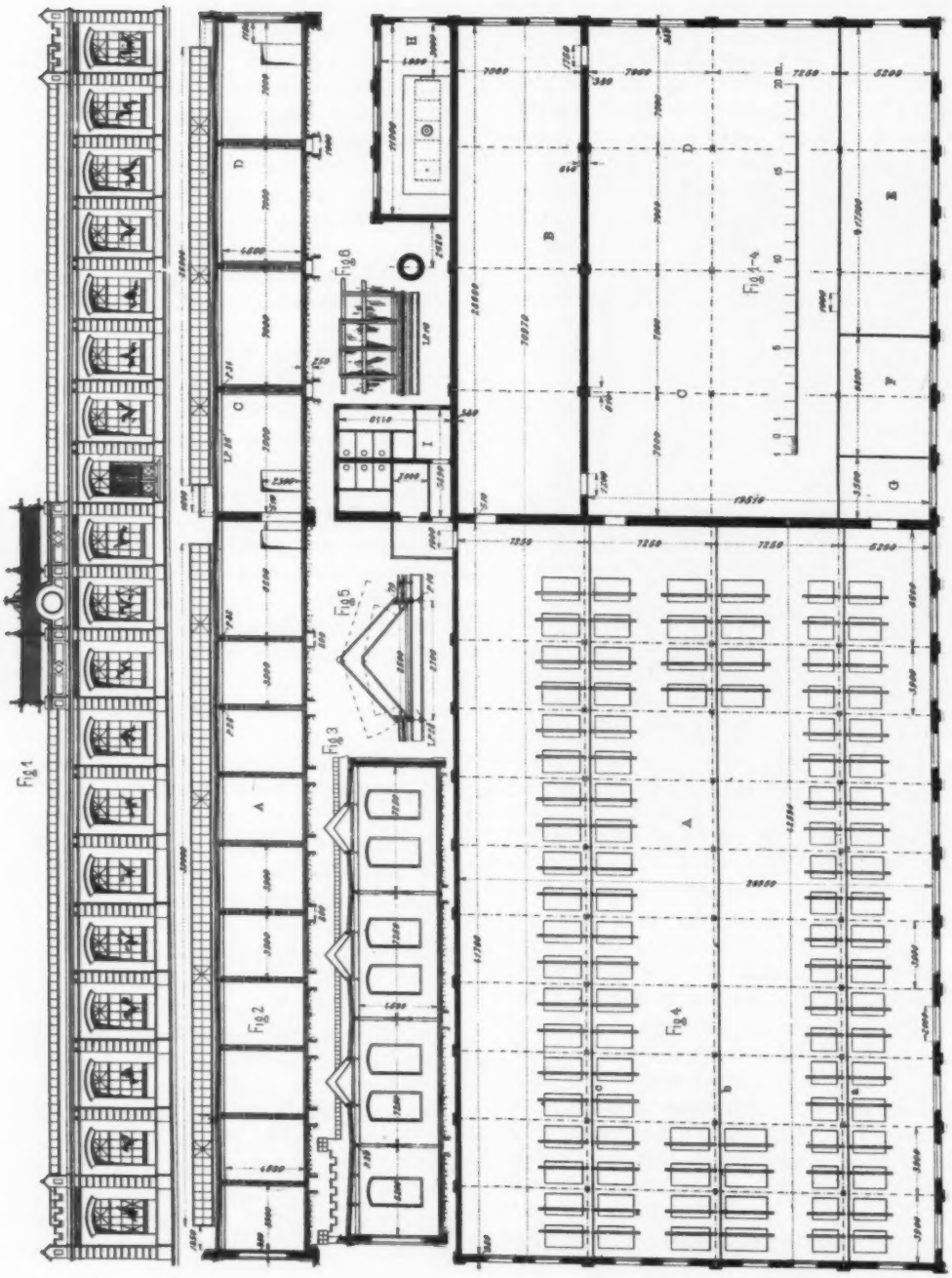


Fig 1
Fig 2
Fig 3
Fig 4
Fig 1-4
Fig 5
Fig 6

SILK THROWING.

BY JAMES CHITTICK.

(Continued from August.)

It frequently happens, however, that owing to poor management, careless or badly trained help, run-down machinery, negligent overseeing, and what not, that waste will have been made that is far in excess of what it should be. If the throwster should send in this silk, treated in a normal way, a shortage would be at once apparent, and the customer would promptly complain. To avoid this those throwsters who are making more waste than they should can conceal the fact by putting in much larger quantities of soap and oil in the soaking baths than are necessary for the working of the silk. The absorption of these materials adds sufficiently to the weight to counterbalance the excessive waste loss, and so the customer is no wiser unless he is in the habit of having his silk tested at the conditioning house. Some throwsters are said to add other substances to the soaking bath of a more or less insoluble nature, so that they will not be detected when boil-off tests are made at the conditioning house, but which substances may give much trouble in the dyeing operations. This, of course, is a very reprehensible practice, but is probably often done.

To guard against such serious losses in waste it is necessary for manufacturers to make free use of the facilities of the conditioning houses. Conditioning means the making of careful tests for ascertaining the actual weight, under accepted conditions, of the substance tested. In order to check off the waste made by the throwster it is necessary to send the raw silk to the conditioning house and have the exact or conditioned weight determined. At the same time sample skeins are drawn from the various bales for use in subsequent boiling-off tests. The raw silk is shipped from the conditioning house to the throwster, and the throwster ships the thrown silk back to the conditioning house. There the thrown silk is weighed, and its exact weight ascertained, and at the same time sample skeins of the thrown silk are boiled off with the sample skeins reserved from the raw silk, so that the relative loss to each of soluble matters may be shown. It is necessary to boil off these two lots of skeins at the same time, as variations will occur in practice when they are boiled off separately. By means of these tests an exact determination of the amount of waste made can be arrived at. Properly substantiated data on the above lines are absolutely necessary to maintain a claim for excessive waste against the throwster. Considering the very moderate charges made by the conditioning houses, and the very heavy losses that a manufacturer may unknowingly be subjected to by failing to make use of their testing facilities, no manufacturer can afford to let the real weights of his raw and thrown silks go unchecked.

With some throwsters the fact that the waste belongs to the throwster, and is sold by him for his benefit as a by-product, may have some influence upon the strictness with which they may follow up their waste. This waste is not by any means a negligible amount. The price that such material will command in the market may run as low as 30 cents a pound or as high as 60 cents a pound. It will normally bring a price of from 50 to 55 cents a pound. Now a moderate sized throwing mill, handling perhaps 10,000 pounds of tram and 10,000 pounds of organzine per month, and making an average waste of say 2 per cent., will have each month for sale some 400 pounds of waste, which, at 50 cents a pound, will amount to $200, or $2,400 a year. If the mill made twice the amount of waste, it would receive twice $2,400 per year. Most of the bags and mats in which the raw silk is packed can be used again by the throwster in shipping out his thrown silk, but for whatever he has to sell there is a market, although the sums realized from such materials are trifling.

The operations of throwing cover the opening, weighing, and examining of the silk, the soaking followed by the wringing out of the water, the opening of the damp skeins and the rubbing of the gums where it is deemed necessary, the drying and the al-

lowing the silk to regain its normal moisture. Then follow, for organzine, the winding, first spinning, doubling, second spinning, reeling, stitching of the skeins, examining, bundling, packing, and shipping. For the tram there is, of course, only one spinning.

When the silk is received by the throwster a report is promptly forwarded to the manufacturer of the bale numbers received, and their gross weight, and subsequently another report is sent along, giving opening weights and a general report on how the silk seems to run, the nature of the gums, how it winds, etc. When the throwing of a lot is completed, a clearance report should be sent in so that the owner of the silk can check off the lot and see just what has been returned to him from what was sent out.

In determining the types of machinery that should be used, the number of spindles that will be required, and the speeds at which they should be run, sound judgment and much knowledge and experience are required. On the proper answer to these questions the success of the enterprise will greatly depend, and the amount of capital to be invested in machinery will be largely influenced. The conditions in each case, such as the space that can be used, the character and quantity of the help obtainable, the average quality and kind of silk that is to be expected, etc., will largely influence the selection of the machinery. The winding machines may be single or double deck. The doublers may be upright or old style, and may be high speed or otherwise. The tram spinners may be single or double deck, or may double as well as spin. The organzine spinners may be single or double deck, or doubler spinners may be used for this purpose, or that style of spinner may be used which does both the first and second time spinning, as well as the doubling, and delivers completely thrown organzine from the one machine. In using this latter style of spinning frame, as well as the doubler spinner, it must be remembered that the spindles are low down near the floor and that it is more advantageous to employ boys at this work than people who are taller, as the stooping makes it very tiresome for grown-up people. The reels may be of different styles, and the number of flies that each should have is a question.

In the silk trade the band spinners, such as are commonly used in cotton mills, are not considered so desirable as the belt spinners, which are frames on which a belt, set on edge, runs round and round horizontally and in its course presses on the bases of the spindles. The spindles are held tight against it by springs. It is difficult to compare the power consuming features of one style of machine with another when the operations and character of material handled are different. Good cotton mill practice is said to show that for each hundred spindles, running at 10,000 revolutions per minute, the amount of power required is 1 h. p. In silk spinning, however, at the same speed, and for the same number of spindles and using belt spinners, it is not safe to estimate the power needed as less than 1 1/2 h. p.

Then there is the great problem of the best average speeds at which to run all these machines. Expert opinions differ largely on this important point. It may be safely said, however, that the highest possible speeds should be employed at which a full volume of perfect work can be obtained. Whether the machinery wears out any sooner than it otherwise would is quite immaterial when compared with a diminished cost of labor. If silks are to be handled which are very difficult to wind, such as Tussahs, Tsatlas, etc., a larger proportion of winding spindles than usual will be needed, and if hard twists, such as are needed for crepes or chiffons, are likely to be ordered, the number of spinning spindles must be enormously increased.

In addition to the throwing machinery proper, a large number of accessories are required, such as the soaking tubs, hydro-extractor, bundling press, soap cutter, etc.

An important item of expense is for the large quantity of bobbins that are needed. With the exception of the iron-head bobbins, which are used on the spinning frames, it will

be found cheapest in the long run to use nothing but the best fiber-head bobbins throughout the mill. These are expensive in their first cost, but are very durable and help greatly in the making of good work.

Much attention must be given in a throwing mill to the regular inspection of the various guides and traverses that are used, whether they be made of the so-called porcelain, glass, steel or what not, as they are very apt to be cut by the rapidly passing silk and so scratch or otherwise injure the threads. The eyes in the fliers through which the threads pass on the spinning frames are also much subject to cutting. Some mills make a practice of taking off all these fliers every Saturday evening and replacing them with a new set, and the ones so removed are subsequently looked over at the bench with a magnifying glass and any which show signs of cutting are smoothed off, or discarded and new ones substituted. In this way it is certain that all the fliers are always in good condition.

It is, of course, of the first importance that the machinery, and particularly the spinning machinery, should be kept properly and carefully oiled, and with the best kind of oil. A convenient plan to pursue to keep the spinning machinery in the best of condition is each week to take the spindles off one-fiftieth of the frames replacing the spindles so removed with another set. During the following week these spindles will be boiled out in soda and thoroughly cleaned, and the following Saturday another set will be taken out for cleaning and be replaced by those already cleaned. By following this course it will be seen that all the spindles of every spinning machine in the place will get a thorough cleaning at least once a year, though of course this can be done oftener if desired.

It is very important that the building in which the throwing plant is housed should be well adapted for the purpose. A one-story building is most desirable, if the land does not cost too much, and it is better not to go higher than two stories. A construction of brick or reinforced concrete will answer well.

The lighting, both natural and artificial, is of great importance. Roofs, skylights, floors, ventilation, heating, sanitation, and many other points must all be carefully considered.

A matter of much moment is the question of whether electrical transmission of power, whether in whole or in part, will be economical under the circumstances, and if so, what system, voltage and kind of current should be used. The building should be arranged so as to minimize the handling of material as it advances from one process to the other. The transmission of power from the engine room to the work must be as simple and direct as possible, and it is well if the arrangement of the floors are such that the foreman can keep each part of the mill constantly under his eye. As silk works much better in throwing when the air is reasonably damp a good system for moistening the air should be installed, as it will increase both the quantity and quality of the product.

In a business where the amount of power needed is so great as it is in throwing it is important that the design and installation of the power transmission machinery should be as perfect as possible. As before stated, for the spinning, much time and consequently great power is required. For this reason, and also for the purpose of minimizing the amount of capital that would have to be sunk in spinning frames and power plant, it is customary to run the organzine spindles night and day.

These frames, running at very high speeds, run along with hardly any perceptible increase in the size of the bobbins, as they fill up with silk, so that one operative can attend to six or eight hundred spindles on first time twist.

Some mills start their spinners at midnight Sunday night, and they do not stop running until midnight Saturday night. Others will start them at seven o'clock on Monday morning and stop at noon on Saturdays. During the lunch hour in the day time, the midnight hour, or the hours between six and seven in the morning and six and seven in the evening, the spindles are

allowed to run by themselves, the watchman only being present to see that nothing unusual happens. A mill, therefore, running its spinning 144 hours a week, will require considerably less than half the number of spindles and considerably less than half the amount of the initial driving power that would be required if it ran everything 55 hours a week.

The winding, doubling, and reeling machinery runs easily, the bulk of the power being taken up by the spinning frames. Of the tram spinners, putting in only two or three turns of twist to the inch and that on several threads doubled together, but few in number are needed compared with what have to be employed for the organzine. On account of this it is therefore not customary to run anything at night except the organzine spinning, so that the night force will consist of a very few hands compared with the total day force of the mill.

A plant producing 10,000 pounds of organzine and 10,000 pounds of tram per month would require about 200 h. p. during the day run, and a relative amount less at night. Cheap power for a throwing plant is therefore a sine qua non, and a location should be selected if possible where cheap coal and water can be obtained.

A large and constant supply of help, too, is a necessity, and no location should be thought of where this cannot be had. It does not make so much difference whether the help is skilled, as it is not difficult to train help to a fair degree of efficiency for a throwing mill, nor is the cheapest kind of help necessary, although, of course it should not be high priced and it is naturally mostly female labor, but under all circumstances there must be enough of it, so that machinery need not stand for want of workers.

The insurable value in a throwing mill is considerable, but the cost of this can be greatly reduced by having a fireproof vault for the raw and thrown silk that is not actually on the machinery, and on such a vault a specially low rate of insurance can be obtained. The throwster always keeps his customers' silk covered by insurance.

The transportation charges on the raw silk received by the throwster are paid by him, but he does not pay the charges on the thrown silk that he returns.

The throwster neither buys nor sells silk and his bills are payable on short time, so that while his machinery and power plant, etc., call for a considerable investment of money the cash working capital required to finance his business is quite small.

Most of the silk throwsters in this country are members of an association, with headquarters in New York, which has very strict rules to govern transactions between themselves and their customers.

Many manufacturers have a desire at some time to put in their own throwing plants. It is, however, a rather difficult branch of the industry, and unless they are thoroughly familiar with the technique of the business, and understand all its requirements and limitations, they are likely to find that in doing so they have given themselves added trouble, have sunk much capital, and are getting poorer work and at greater cost than would have been the case had they sent their silk to some reliable commission throwster.

COLONIAL WOOL FOR AMERICA.

The American factor is today paramount in the wool trade, the influence of United States buying taking the whole world by storm since the last March series of London Sales. It is now mere history to say that its special needs can only be met by the best grown wools, and owing to certain conditions of tariff arrangements only the best classes of merino and cross-bred are imported. The onslaught at the May series was remarkable, and so far at the English fairs they have knocked every one to the wall in their great eagerness to secure good half-breds and fine Down descriptions. The question is well worth asking, what special descriptions of Colonial and home-grown wools are purchased by America, and the subject deserves considering.

The fact is very remarkable that America is a larger buyer of Australasian-grown wools than it has ever been, and this not-

withstanding a big import duty of 11 cents per pound on greasy wool. At the time the Dingley tariff was enacted we were told by United States sheep enthusiasts that, given an adequate duty, sufficient wool could be grown in America to meet its own manufacturers' needs. Such a statement the writer never believed, and if the import duty were doubled tomorrow no less quantity of Australian merino and New Zealand crossbred or English wool would be imported. It is a question today of American mills requiring Colonial wool, and they cannot do without it, no matter what the cost. Australasian wools produce fabrics which in the natural order of things are the very best, and it is a fact that the more their manufacturing properties are known the more they are appreciated.

BUYING ALL QUALITIES.

American buyers purchase all qualities and descriptions of wool; that is, so far as the combing is concerned. Operators from across the Atlantic very seldom go beyond purchasing the combing lots, the exigencies of their tariff compelling them to keep to the lightest shrinkage parcels. Here we see the wisdom of growers making the most of their combing wools, and the benefits arising from skirting are seen when American buyers give their support to the wool. It has to be an exceptionally good lot of clothing or broken that commands American support, and I do not know that I ever saw United States operators purchase necks or pieces. There is any quantity of good medium merinos and crossbreds which would do admirably for both combing and carding purposes if they could be imported at a reasonable price, but so long as the present tariff remains in operation buyers will be compelled to purchase only the lightest-conditioned parcels.

THE MERINOS PURCHASED.

As already said, the fundamental principle to be observed in buying wool for America is that of weight which the raw material will bring when clean scoured. In other words, it is the old story over again of shrinkage, and the "clean yield" it will bring. Now very little merino wool is bought for the United States that will not give half weight, that is 50 per cent., and the nearer it will give 55 per cent. clean yield, the more likely it is to command American support. As a rule, Victorian wools, and particularly those grown in West Australia, the best Riverina wools, and a few of the lightest Queensland clips, with an occasional lot or two from West Australia and Tasmania, are also bought for the United States. It is hard to say what quantity of the Australian clip will give a clean yield of 50 to 55 per cent. It has been estimated that of the wools grown, 40 per cent. of medium merinos will give a clean yield of 48 to 52 per cent., but I should question if that estimate is trustworthy. Merino wool yielding, say, half weight, is considered very light and good, and more like 25 to 30 per cent. of the Australian clip would to my mind be nearer the mark. Another 15 per cent. would give from 52 to 55, and the remainder would yield anywhere from 38 to 45, with the exception of the heavy stained pieces, bellies, and locks. I am certain that American buyers are beginning to appreciate more the opportunity of purchasing Australian merinos, and they know better than was the case some few years back, when the best clips will be offered.

The class of merinos that America likes perhaps the most is the broad shafty, deep stapled wools, and Adelaide descriptions are often prime favorites. I have often been in London when two or three American buyers have taken every lot of combing, for they know just as well as Yorkshire topmakers that these wools have plenty of "tear" about them. This is perhaps what makes them so popular along with the best Riverina clips. These wools will carry through less desirable parcels, and they will stand "mixing" very largely with their own domestic fleeces if users so elect. In the case of West Victorian wools, these serve an admirable purpose. They are very well liked by every section of the trade, and it is a thousand pities that West Victoria is not a larger wool growing State.

A few New Zealand merinos find their way across the Atlantic, but as a rule they are too heavy and fatty for that quarter, and the same can be said for the wools of South Africa. Of course, estimates can vary anywhere up to 5 per cent. respecting the yield of wool, and I have known so-called experts be as much as 8 to 10 per cent. out in estimating the yield of a lot of wool. At the same time American buyers know what they want, and having found what suits their purpose, they cannot easily be shaken off. If South African wools were in lighter condition then they would sell in good quantities, but so long as six months' shearing is so general, and the wools are so badly prepared for market, America will not touch them. A few special clips from the Western Province and Kaffaria are taken, but I should say that not more than 5 per cent. of South African wools are suited for American requirements.

New Zealand crossbreds are prime favorites with American buyers, and here we see a large quantity being annually shipped. Many lots were purchased last series in London that would give fully 75 to 78 per cent. clean yield, and some handsome prices —up to 16 1/2d.—were frequently paid. These very light fleeces are, however, the exception. The bulk of the wools of a crossbred nature which are shipped across the Atlantic will not give a clean yield of more than 70 per cent.

South American wools, including those of the River Plate and Punta Arenas, are also commanding the support of American buyers, and will continue to do so. In the latter, condition is of first importance. Their manufacturing properties as good hosiery wools have been recognized by United States manufacturers, and these are certain to be more largely bought in the future. The fact is very significant that even Scotch black-face, which is about the coarsest wool that is grown, finds large support at the hands of American carpet manufacturers, and there is no better-grown wool in any part of the world for this purpose.—Yorkshire Post.

STENCILING ON TEXTILES.

BY ROMULUS.

It cannot be said that the stencil process of decorating plain fabrics is practised on a large scale in England as yet. But the signs are encouraging that the business is likely to grow and more people are paying attention to it. Up to two or three years ago stenciling seems only to have been done by amateurs who cut stencils for themselves, or had them cut by a house-decorator, and then proceeded to adorn burlap or cocoa matting for the improvement of their homes. When casement curtains became fashionable stenciling began on a commercial scale and fair quantities of bright worsted and other goods have been submitted to treatment. A flat floral figure, 2 1/2 to 4 inches high, stenciled in one color and set at distances of about a foot apart, have been the usual styles.

There are more ambitious developments now pending. Borders for parasols and panels for fancy gowns are being done on silks. For veilings and millinery, monochrome effects are stenciled on tulle. Following an example set by the Continent, flowers in several colors are being stenciled upon tapestry figures. In the same way also figures are being colored in cotton "satin" quilts and in the outlines of machine-printed cotton cloth. Again they are stenciling velvets or plushettes to make mantel borders and putting art effects upon canvas cushion squares.

This list does not limit the variety of the applications of the system. For instance, experiments are going on to see what can be done with cotton nets and to discover means of making sham embroidery by stenciling nets with an agglutinant, and afterwards treating them with cotton dust. It can be said in passing that the cotton dust process of producing imitation swivel figures is being worked now by three or four machine printers.

In actual cost of operation the stencil process obviously cannot compete with printing machines or even with hand printing

from blocks. It is a process manifestly for "short runs" and for trade that does not support the heavy preliminary expenses of engraving. The demand for numerous and exclusive designs is growing and therein lies the stenciler's chance. To have a printed design confined means an outlay of perhaps $350 for roller cutting. It is an inexpensive job to cut stencils, which are or may be either of stout oiled paper, like that used in press-copying letters, or of thin metal—say lead 1—both of an inch thickness. The main initial cost is in designs and these according to their sort may cost up to $25 if they have to be bought. Designs are not so dear to a competent designer and at least one public textile designer in England is taking up stencil work. In any case, the cost of a successful design is soon extinguished in operation. The word "successful" is used advisedly, for, simple as it seems, stenciling work cannot be recommended to those who have not a good understanding of public taste. Anyone who can draw can design and any good draughtsman can so cut stencils as to achieve the desired artistic effect. As no manufacturer should need telling, the number is fewer of those who can design what will sell.

It may be asked how stenciling is done and the answer is with inks and hard, short-bristle brushes. The color is dabbed through the cuts in stencil card. As appears from a German patent, a native of that country had an idea for a mechanical device which should bring ink up by suction through a blanket and thus through the stencil plate and the cloth. It may be advantageous to apply inks for some fabrics on a hand-roller—say of felt; the point is not clear. Evidently means have to vary with the class of fabric treated. A cowhair plushette and a Japanese silk are distinct and separate things which require different inks or paints.

Plush mantel borders are colored with oil mixtures and the beginner finds difficulty in preventing the paste from sinking and showing faint and in hindering the pile from "clagging." One way of producing a passable effect is to give two coats of the paint; a more advantageous way is to have the fabric treated first with wax. Wax rainproofing enables the color to take a good surface-hold and does away with the objectionable knobs of color that are otherwise likely to form and harden on the pile.

For thin and washable fabrics other inks have perforce to be employed and it is possible that there is as yet no perfect one. Fluid inks are desired and indeed are indispensable to some effects where colors are to overlap and form new combinations and where there is an objection to a crust on the fabric. For washable goods draughtsmen's waterproof inks have been tried, but it is not known that experiment has yet reached finality. Coloring work, even in its more complex forms, can be done efficiently by young girls just from school and a beginner can turn out her dozen cushion-covers a day stenciled in three or four colors. Girls on account of their carefulness are preferred to boys and the work is very suitable to them.

Some difficulties arose from the presence of size, starch and other finishing ingredients in the fabrics and it is advisable to confine operations to goods that are properly suited for treatment. Fair permanency is expected in articles which are to retail at a good price and this may involve a preliminary mordanting. Apparently amateur workers have used principally water stains, making their blacks from nutgalls and iron or from logwood, reds from alizarin paste or Brazil wood, blues either from sulphate of indigo or from tar colors, and yellows from saffron, turmeric or the aniline series. Dilute colored spirit varnish has been used to make the goods waterproof, but the dry gum imparts a harsh handle.

There was imported into Egypt in 1906 about 5,526,170 pounds of cotton yarn valued at $979,238. This yarn was consumed by Egyptian hand looms. The cotton manufacturing industry in Greece dates from 1870, when a spinning mill was erected at Piraeus, and the industry has, in spite of ups and downs, and though still very small, contributed considerably toward the upbuilding of the country.

CORRESPONDENCE AND NOTES

Upon Textile Topics At Home and Abroad.

TUBULAR NECKTIES.

BY RIBBONAIR.

Of late years the manufacture of men's neckties has become quite an important branch of the silk industry and simple as the article itself is, it has now, in common with other articles of wearing apparel, become subject to all the changes of fashion both as regards material, design and color.

One has only to compare the fabrics which are now used for neckties with those used some years ago to realize the great change which has taken place. Formerly neckties were made chiefly from remnants of various

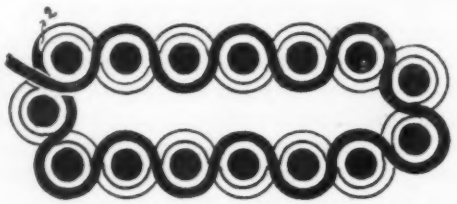


FIG. 1.

silk fabrics which had originally been intended for ladies' dress goods and the variety of material, design and color to be found in the ties on view in any outfitter's window was very limited then as compared to the present time.

Nowadays quite a large number of silk fabrics are woven solely for the manufacture of neckties and it is no uncommon thing to find an outfitter with ties made from material of special weave or color which has been reserved for his own exclusive use. Each season brings forth new styles, the fabrics ranging from self colored poplins and crepe de chines in the newest shades to fancy jacquard and swivel effects of real artistic merit.

The material is cut up into strips of the desired width and shape, folded round a strip of padding material and sewed together.

Within recent years a new style of necktie has been introduced which dispenses with these latter operations, the tie being complete as it leaves the loom. Considering that the finished article is only comparatively narrow, it seems surprising that earlier attempts have not been made to weave a sufficiently strong narrow fabric complete in itself, after the fashion of a ribbon, which would answer the purpose without the necessity of sewing up strips cut from a wide fabric. Perhaps one reason has been that many people preferred the tie to be shaped. This shaping, however, is only necessary in the case of a very broad tie. If the tie is a narrow one such as has been popular within recent years there is no objection to its being the same width throughout, the length and shaping being unnecessary.

The new ties referred to are woven on a ribbon loom and are known as tubular ties. They possess many advantages over the usual kinds, there being no edge to become

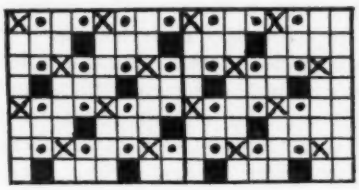


FIG. 2.

unstitched and no padding to get out of position. Being woven on a ribbon loom a good many ties can be woven at once, according to the capacity of the loom, and with one harness mounting, while a range of colors of the same design is a simple matter as each tie in the width of the loom may have a different colored warp and weft if desired. They can be very cheaply pro-

duced and are made in a variety of plain and figured styles from both cotton and silk yarns. Manufacturers with ribbon looms might do worse than turn their attention to these goods as the trade in neckties is fairly considerable and worth attention. Tubular ties are becoming more in favor each year on account of their hard wearing properties.

paper design. The warp ends of the top cloth are shown solid while those of the bottom cloth are shown by crosses. All marks represent warp lifted. Dots represent threads of top cloth lifted clear when pick is inserted in lower cloth.

Fig. 4 is an illustration of a cloth of this kind, the stripes being made from a couple

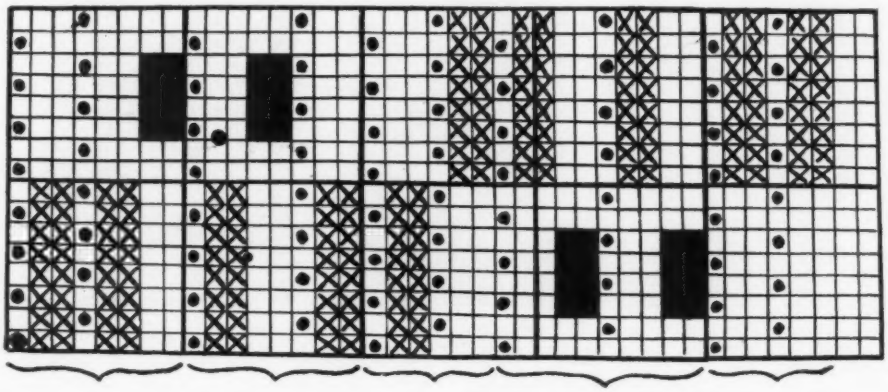


FIG. 3.

The fabric is woven in the form of a flat hollow tube after the fashion of a pillow casing. The double cloth structure thus obtained gives bulk and also a reversible character to the article since each face is figured alike. Ornamentation is obtained by the introduction of colored ends and also by means of extra warp figuring ends. Fig. 1 shows a section of the cloth in its simplest form. The weave is plain throughout for both the face and back, thus forming a hollow tube of plain cloth. The dots represent the warp threads; the first pick of the pattern in both top and bottom portions is shown solid while the continuation of the weft forming the second pick on both sides is shown in outline. It will be understood that a greater number of warp threads would be required for a full warp than are shown here. It will be noticed from this diagram that an odd number of warp threads are required in the complete warp. This is necessary in order to make a plain cloth all the way round and give a perfect edge. Fig. 2 shows the point

of threads of colored yarn. There are 63 threads in the complete warp, each thread consisting of 4 ends 2/40 mercerized cotton weaving together as one thread. This gives a fuller effect and "feel" to the cloth than would be obtained by using a single thick yarn or even a doubled yarn of equivalent weight. The weft is 2/40 mercerized cotton. In this case 3 threads are wound together on the bobbin and form one pick.

Fig. 5 is another pattern of similar structure. The weft in this case is 2/10 mercerized cotton. The check effect is obtained by colored threads in the warp checked with filling which has been printed (before weaving) with strips of color of sufficient length and distance apart to give the requisite size of check when woven in the cloth. The printing is performed after the manner of printing carpet yarn. By using weft of this kind only one shuttle is required, and a clear selvage is obtained, as otherwise two shuttles would have to be used, which would leave a loose thread of each color up the side

from the finish of each section of color to its commencement again. This would have to be clipped off and with thick yarn like this would leave an untidy edge. The point

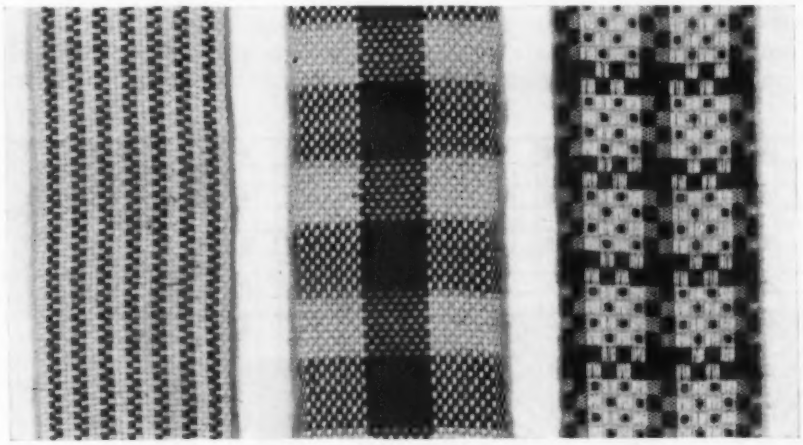


FIG. 4. FIG. 5. FIG. 6.

paper design is the same as in the former case. Although harness could be used, it is more usual to employ a jacquard mounting

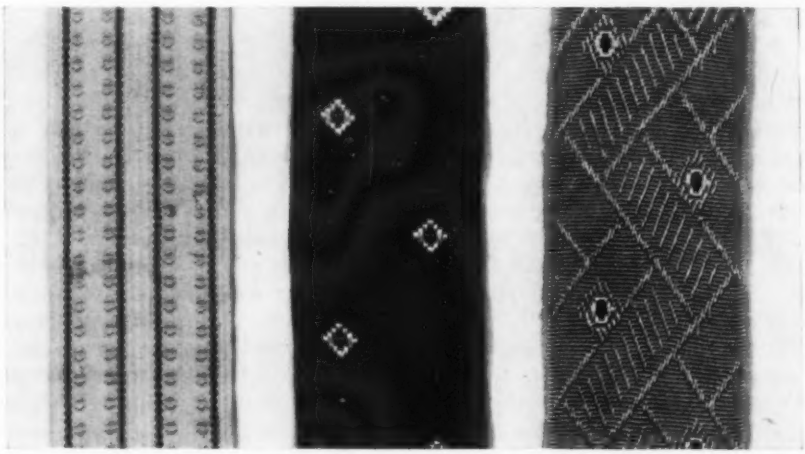


FIG. 7. FIG. 8. FIG. 9.

for convenience in changing from one style to another.

Fig. 6 is a novel style. Figuring in this case is by means of extra warp threads. These figuring ends are arranged end and end with a set of threads which make tubular plain cloth as in the previous examples. Each side of the cloth has its own figuring ends and when these are not required on the face they lie loose between the two cloths and are thus hidden from view and do not require shearing off. This cloth is a finer make than the two previous ones. The yarn for the plain tube is 2/60 mercerized cotton. For the extra warp ends forming the matt effect and also colored spots the same counts and quality of yarn is used, but two threads

weave together as one end. Fig. 3 shows the design of a portion of the cloth. This is not a full working design for making the double cloth, but is simply a plan showing the weave of the upper cloth. The design for the lower cloth would be the reverse of this one. A full working design would be obtained in the usual manner. All marks on design here given represent warp threads lifted. The dots indicate the ground ends, crosses show the extra warp matt-weave ends, while the solid squares represent the extra warp colored spot ends. The brackets show how the threads would be grouped in the reed for each cloth, therefore there would actually be twice the number here shown in each dent of the reed. Two shuttles are used having white and colored filling to get the check effect. The loose filling up the edge between each change of color is afterwards cut off but in this case owing to the weft being fine, 2/60s, the edge remains quite clear.

Fig. 7 is another style of similar structure to Fig. 6. The black stitch ends and white cords form an effective contrast to the colored spots.

All the preceding examples are known as "washing ties." Fig. 8 is a silk-warp poplin woven with two-fold cotton filling. The spots are made from extra warp, also of silk, and give quite a swivel effect. In this and also in the next sample, the same set of threads which form spots on the top, also form those on the back, so that two sets of extra-warp figuring ends are unnecessary. The spots on the underside come between those on the upper side and the figuring threads when not required on either top or bottom lie loose between the two cloths. Fig. 9 is a silk warp figured poplin also further ornamented by spots in the same manner as the previous example.

The ties are woven in one long, continuous length which after leaving the loom goes through a slight zephyr-finishing and calendering process and is then cut up into ties about 36 inches long. Sometimes in the better qualities the cut ends are folded inwards and stitched. Silk warp poplins like Figs. 8 and 9 being very liable to fray if left with the cut ends untouched, are often woven with a narrow dividing strip every 36 inches. The weft in this strip is changed from the two-fold cotton to fine silk and the picks are well beaten together. The cloth is wound up slightly in the middle of the dividing strip thus forming a small "fret" and the ties are afterwards cut at this point. The ends then do not fray and do not require folding and stitching. After the ties have been cut up they are folded up, encompassed by a small paper band bearing the trade-mark or name and made up into boxes.

The foregoing examples serve to show only a few of the different styles made in these goods and do not by any means exhaust the full range of possibilities in this direction. Knitted tubular ties are also made and some very novel effects are produced by the introduction of colored silk and fancy yarns and the effect obtained by the crossing of the threads is very effective. Similar ties are also made on braiding machines and very curious and novel effects are produced and as previously mentioned the goods are worth the attention of ribbon and small-ware manufacturers.

A COTTON SPINNING MILL.

Figs. 1 to 9 show the plans of a cotton spinning mill built for Finlayson & Co., Tammerfors, Finland, and equipped with 43,000 spindles for fine mule and ring frame yarn. The building has four stories and is nearly rectangular, having several annexes. Figs. 3 and 8 show the fireproof construction of the building, the floors of iron and concrete being supported by iron columns. The building is covered by a cement roof of the ordinary construction, the total weight of which is about 70 pounds per square foot. Light is admitted to the mill through double windows 60 inches wide and 138 inches high.

The arrangement of the rooms and machinery, as shown in the plans, enables the work to be carried on with a minimum movement of material. The cotton bales are received in the room, D, in the basement of the mill, to which they are taken by an elevator near the chimney, shown at Fig. 8. On the same level is an enclosed mixing

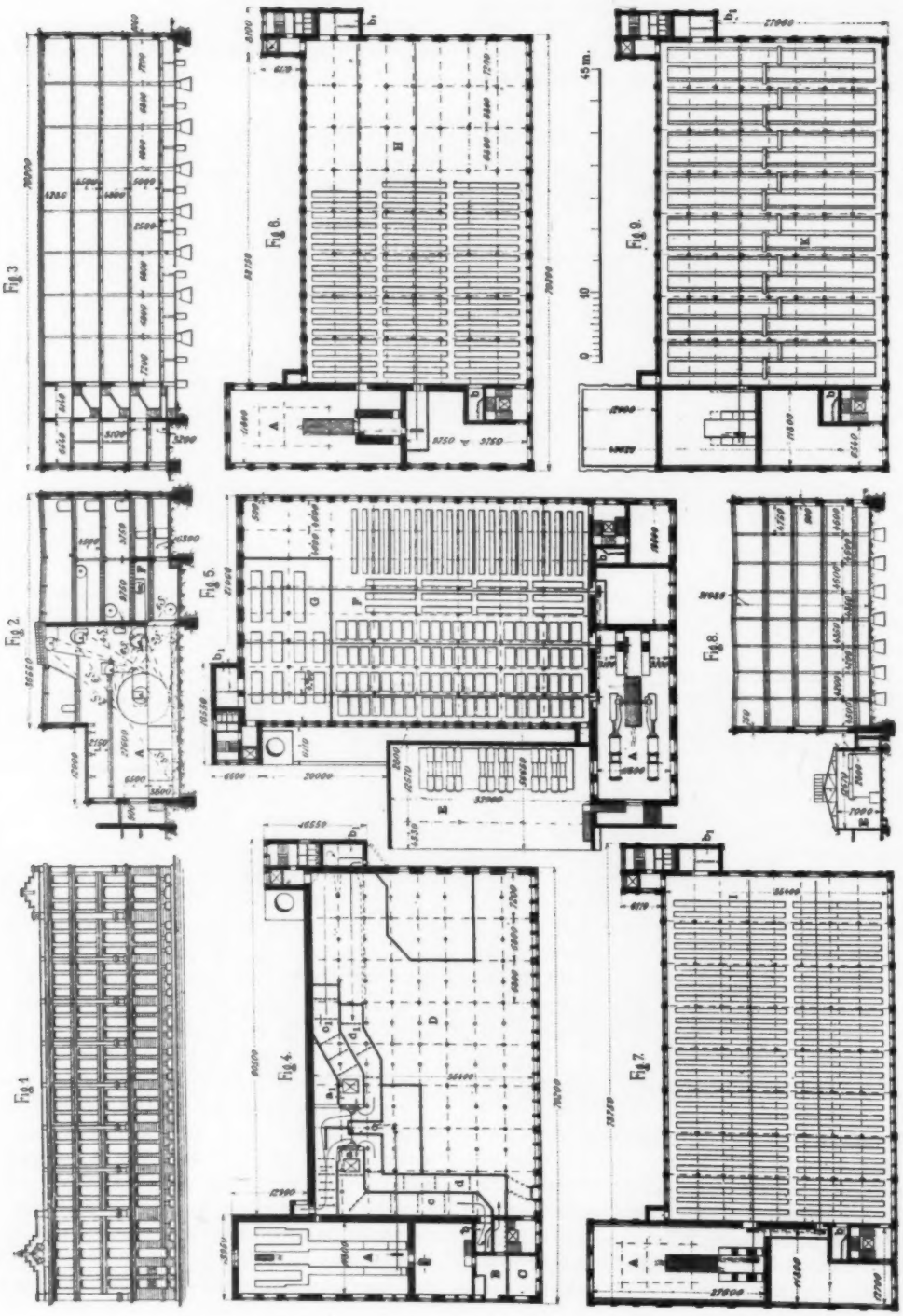


Fig 1
Fig 2
Fig 3
Fig 4.
Fig 5.
Fig 6.
Fig 7.
Fig 8.
Fig 9.
45m.

room in which is a bale breaker for opening the cotton. The cotton then goes to self-feeds from which it is carried by pipes to the three 40-inch pickers in room, G, first floor. From the finishing pickers the laps are taken to the 84 cards, which are 50 inches in diameter and 38 inches wide. The cards are arranged in 4 rows of 21 machines each, as shown at Fig. 5. Next to the cards are 12 drawing frames of 3 heads each. From these machines the cans are taken to the coarse and intermediate drawing frames. The position of the cans is indicated by the drawing frames marked with double lines at Fig. 5. The 10 coarse drawing frames are 33 feet long and have each 80 spindles set 9 inches apart, a total of 800 spindles. The 12 intermediate frames have each 120 spindles set 6 inches apart, a total of 140 spindles. The spools from the intermediate frames are taken by the elevator to the floor above, the plan of which is shown at Fig. 6, where they are stored until taken to the first row of fine frames of which there are 18, each having 148 spindles. There are also in this room 38 double fine frames of 180 spindles each, a total of 6,840 spindles.

The roving is taken from this room to the ring frames on the floor above. There are 30 frames of 480 spindles each and 30 of 464 spindles each, a total of 28,320 spindles. On the fourth floor, shown at Fig. 9, there are 16 mules of 920 spindles each, a total of 14,720 spindles, making a total of 43,040 spinning spindles in the entire mill.

The yarn is taken to the room, H, Fig. 6, where it is reeled, moistened and packed for shipment.

The rooms in this mill are light, high, well heated and ventilated. The distance between posts are: Lengthways, 1 by 24.4 ft., 6 by 22.1 ft., and 1 by 6.5 ft.; crossways, 1 by 14.6 ft., 2 by 13.6 ft., 2 by 14.1 ft., and 1 by 14.9 ft. This arrangement is well adapted for the placing of the machines and the arrangement of alleyways.

Beginning with the basement, the ceilings are in height as follows: 8.1 ft., 16.2 ft., 15.6 ft., 14.6 ft., and 13.9 ft. In addition to the work rooms above mentioned, there are two convenient stairways at the front and back of the mill. Adjoining the front stairway is a dust tower, b, and a belt way, also the office, the overseer's room and the testing room on the different floors.

The boiler house, E, is isolated from the mill by a heavy wall. A stairway leads from the boiler house to the engine room, A. The construction of this building is shown at Fig. 2. It is 41.3 ft. high, 9 ft. long and contained a 4 cylinder compound engine of 1200 h. p., of which about 100 h. p. is required for electric lighting. Fig. 2 shows the method of transferring power from the engine to the different rooms of the mill. There remains now to be mentioned the installments for ventilation, air moistening and heating. As shown in the plan of the cellar, Fig. 4, further air is supplied from a chimney in the corner of the mill and the power house and carried by a ventilating fan to conduits indicated by the arrows. This air is heated from 70° to 120° F., then moistened to the desired degree in a room from which it is conducted by conduits, c^1, d^1, c and d, to the different rooms of the mill. The dust is carried by the dust tower, b, through a high chimney to the open air. The foul air from the mill is removed through pipes in the front wall. The mill is lighted by a dynamo which is located in a separate room in the cellar, Fig. 2. Above the dynamo room is a set of storage batteries supplied from the dynamo. The room used by the watchman is shown at B, Fig. 4. The exterior of the mill is shown at Fig. 1.—Uhland's Technische Rundschau.

In the calendar year 1907 Germany exported cotton yarn to the value of $7,886,566, and cotton goods to the value of $89,015,570, or a total of $96,902,136. In the same year the United States exported $294,012 of cotton yarn, $14,900,421 of cotton cloths, $5,147,748 of wearing apparel, $2,579,582 of cotton mill waste, and $3,401,299 of other cotton goods, or a total for cotton manufactures of $26,323,062. Next to Great Britain Germany is the largest exporter of cotton manufactures in the world.

ENGLISH NOTES.

(By our Special Correspondent.)

The final signing of the tariff bill, of which news is just to hand, comes as an anti-climax and creates no English disappointments. Comments on the measure are chiefly remarks on the mockery of "revision downwards." It happens that textile exports to the United States are good. There is an increase of $1,350,000 in July of last year in goods, raw and manufactured, from the U. S. Consular District of Bradford and an increase of 33 per cent. from Huddersfield. It is pointed out by a Huddersfielder that much of that town's production is entered from London in American returns as the fabrics are sold through London commission houses. A rough estimate puts the value of Huddersfield worsted sent to America at $500,000 annually. These are broadly of a higher class and price than Bradford worsteds.

The better trade with America is taken as a heartening sign in favor of trade in general. We expect a revival all round and find some signs of domestic improvement. Various large enterprises are reporting dividends which maintain the lead of the last, but these profits tell of rather an artificial prosperity. They have been won by cutting down expenses, not by employing more men. Indeed the number of skilled workmen unemployed in England is twice the normal still.

* * *

A harrowing picture of life in the combing-sheds is drawn by the Chief Lady Sanitary Inspector of the city of Bradford. According to the indictment over 2,000 women are at work for wages of $2.28 and up under conditions "undoubtedly most deleterious to their health." In backwashing "the damp heat is far worse than tropical," the women leave work "their clothes saturated with perspiration, their hair dripping with moisture." Anaemia and phthisis particularly afflict this class who are moreover "drunken and immoral." The foregoing has its grain of truth, but the statement that in Yorkshire "mothers of illegitimate children are invariably workers in factories" is absurdly false. Men in Bradford are accused of choosing wives for their earning capacity, but marriages for money are made by both sexes and in all places. Like other employers Bradfordians get what they pay for and the combers gather up the leavings of better paid trades.

* * *

A dressgoods manufacturer ordered a Yorkshire dyer to dye cotton warps a clean aniline black. The dyer used sulphide black as dyers mostly do. The warp was for striping in mixed worsted goods and in course of finishing the pieces were stoved. The stripes rotted as a consequence of the generation of acid, the goods were spoiled and an action at law has determined that the warp dyer has to make good the damage. Even hot-pressing, according to the evidence of experts, has been known to tender sulphide-dyed black cotton, but stoving is the fatal thing. What makes the case hard for the warp-dyer is that probably any aniline black dyeing, i. e., with aniline oil, would have been rejected as being not clean enough.

* * *

Charges are low at the Bradford Conditioning House, but the profits are considerable. A net profit exceeding $16,000 is made on an income of $92,000. Analysis of the receipts shows that appreciably more than half of the takings arise from bulk-testing. A very small proportion is formed by sample-tests. The bags of tops are delivered to the House, samples are drawn by the officials in their own manner, the tests are made, the packages closed and the bulk is away on its journey in a few hours. The institution would not do so well if there were no export business.

* * *

Textile engineers have unionist operatives to thank for some things. It is unionist pressure that has caused the Government to condemn the ordinary system of dust-extraction in cotton card rooms and to give notice that use of fans which draw the dust through

the general air of the room should not be continued. Arrangements for sucking the dust into ducts placed over each row of cards are approved. Again, union representations have extracted an order directing that all card machines shall have locking fronts.

Unionists have in hand agitations for the adequate lighting of factories and for the abolition of the system of carrying warps up and down stairs. Old and small mills give the most cause of complaint. New mills with their large windows, sometimes of prismatic glass, their elevators and their floor planning are all proper enough, but we have mills which have never been brought up to date, and mills that have been started in old and inconvenient premises, chosen because they were supposed to be cheap. Managers say you do not know what misery is until you have wrestled with the structural defects of these places. When there is never more than half a light and when your broad looms have to be edged this way and that into a shed built for narrow ones, you pray at least once a week for a fire.

* * *

Export merchants principally engaged in selling woolen wastes to the Continent take some interest in promoting the foreign sale of British textile machinery. The 2 1/2 per cent. commission does not fully explain their attention. They find that separate considerations interact and that the manufacturer with German machinery inclines to buy wastes prepared in Germany. On the other hand English wastes are suited best to English machines, and are bought for them. The waste merchant is always glad to export an English foreman to a Continental mill or to import a foreign manufacturer's son and place him where English methods could be learned. If it were not for the influence of use and familiarity, British exports of textile machinery would probably be less than the $40,000,000 of recent years. Men want what they have been used to and what they understand and the Continental manufacturer is often heard to say that he does not use German looms because they are better or cheaper than English, but because they are the ones his overlookers know best. British textile machinery got a start of all others and it is still England's largest export in the engineering line.

* * *

The draft, Fig. 1, shows what one of our best designers has done to produce blue worsted diagonals, free from the usual ribbiness and with the handle of the ordinary blue serge. The draft gives the large effect which

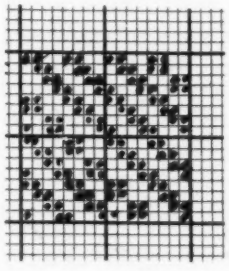


FIG. 1.

is worked in on a common twill ground and worsted men are recommended to try it for themselves. Admittedly the style is not a true diagonal, but it gives all the effect required and is preferred by clothiers and their customers to the weaves that regularly go by this name. The mill has done well with it.

* * *

Tables that should be valuable to those who want to insure on mutual principles against factory mishaps are issued by the Master Cotton Spinners' Federation. They give the experience of twenty months in working 39 1/2 million spindles and show that in this time 19,075 personal accidents occurred. Half of them were trifling and involved no cessation of work, 42 per cent. of them involved absence for more than two weeks. The age of fourteen is the critical one at which most accidents occur and the age of 20 to 25 is another dangerous time. The safe people are the seasoned workers of 30 and over, among whom the accident rate in this experience falls to about 1 1/2 per cent. Speaking roughly 54 per cent. of the accidents occurred in the mule room and 23 per cent. in the card room. Males were in more accidents than females, the propor-

tion being about 14 to 5. The time of day at which accidents are most frequent is found to be between 10 and 12 noon; fewest occur between 8 and 9, which may or may not be directly due to the influence of breakfast.

* * *

The cotton and the worsted spinning trades are the great employments for half-timers; 20,000 are employed in one branch and 10,000 in the other. Consequently it is these that are affected most by the recommendations of a committee of the Government (a) to do away with half-time labor (b) to raise the school-leaving age to 13 (c) to make labor certificates even at 13 conditional on attendance at evening classes or on passing a higher educational standard. Master cotton spinners are less hostile to the change than worsted men. Parents in both sections are overwhelmingly opposed to the proposal and will resist its passage into law. Yet the change will come, for the worsted industry is incapable of providing for the future of its boy-doffers. One man to four women is the proportion among worsted spinning hands aged over 15. Fifty per cent. and more of male half-timers are turned adrift on the unskilled labor market. There may be seen here one of the public disadvantages of the splitting of industry into separate and unrelated departments. The spinner is a spinner only, he has no combing or weaving sheds into which to send his big lads.

* * *

An argument used in favor of a shorter working week in the cotton mills is that we have it already. Deducting stoppages and averaging a great enough number of years, it is shown that spinning hours have not exceeded fifty per week. It would be better —say operatives' leaders—to make 50 instead of 55 hours the rule and thus equalize production. But it has to be said that for two-year stretches in recent times the full-time week has not been long enough. Then what of the new mills that would certainly be built on speculation to share the better margin between raw cotton and yarn? There seems no particular reason to think that a 50-hour week would abolish such short time as we have now, when spindles are stopping two days a week to give profits a chance.

* * *

A "whip-lashed" piece, in the language of the mackintosh trade, is one showing fine cuts in the twill such as might conceivably be made by a smart blow from a whip. Actually the marking occurs in singeing. Let there be a little fold or crimp when the piece goes across the singe-plate and along the line of the fold the fabric is too deeply burnt. Garment makers view the defect seriously, refuse to use the goods at a slight reduction for backings or linings and reject the fabrics as jobs. The goods are thrown back on the dyer's hands and the offer that garment makers give him is 50 to 75 per cent. below cost. Finishers begin to see what a very profitable industry (to somebody) must be this conversion of scarcely-spoiled goods into desperate "jobs."

* * *

The chemist confessed himself nonplused. He had been called in to discover why white worsted dress goods developed stains in bleaching with hydroxyl. The process had worked faultlessly for months previously and the origin of the stains was a mystery. The only apparent origin—an iron pipe overhead from which droppings would convey microscopical quantities of iron—was insufficient in itself. Besides, the pipe was not a new thing.

He called on a practical finisher who has a knowledge of theory. The affair was explained. The firm used hydroxyl continuously and might not clean out the machine for a week or a month. They kept reinforcing the bath with new hydroxyl and small quantities of alkali. They used silicate of soda, carbonate of soda or ammonia, just as they pleased or as was most handy.

The finisher put his finger on the spot at once: "They use alkali," he reasoned, "and they use it too freely. The alkali accumulates and if it is sufficiently caustic begins to liberate a little—only a little—of the sulphur

in the wool. You have sulphur di-oxide gas forming—"

"In short," broke in the chemist, "we have sulphuric acid in minute quantities operating. I am immensely obliged and you don't need to say another word. Now we are ready to end that trouble."

BRITISH KHAKI.

BY WESSEX.

A questioner asks about the cotton khakis made in England and used by the military authorities. He wants the British Government specification, which now chances to be a loose one. The contractor is required principally to match the official pattern and his deliveries have then to stand comparative tests. As to color, it is laid down that it must stand washing in soap and water; exposure to sun and air; boiling in soda and water; and steeping for 24 hours in a ten-volume solution of hydroxyl diluted with twice its own weight in water. To secure acceptance the goods must answer these requirements as fully as the official pattern does. The British army is forsaking piece-dyed khaki for mixture goods. The Indian army clings to piece dyes and its standard is the Leemann & Gatty khaki—the same that until a year ago was served out to troops and police in the Philippine Islands.

Besides the official and military sorts there is the so-called "bush khaki," first introduced during the South African war and now extensively used throughout the hotter colonies for civilian wear. A typical pattern of bush-khaki is sent herewith. No verbal description does this olive drab justice. It is one of numerous shades used by waterproofers and dyers to that trade obtain it by use of diamine colors—for the sake of cheapness. If they wanted superior fastness they would use sulphide dyes. Bush khaki perhaps offers better protective coloring to the wearer than do the yellow khakis if worn in bush country.

In answer to the query whether "vat" colors, like the Indanthrene series, are used in England for the production of khaki: It would be impossible to say what is not used, but it is questionable whether the English bush khaki could be produced with them and sulphide or some other would be preferred on the score of convenience. Vat colors, dyed in a reduced state with hydrosulphite and caustic soda are made by more than one color maker and their extremely good fastness to light and milling is admitted.

The fact that the inquirer has had trouble in satisfying Government requirements excites no surprise. The army contractor's path is paved with trouble and it is not exaggerating to say that British cotton and woolen men have at one time or another been in difficulties with every government in the world. "Lord help him" was a manufacturer's exclamation on hearing that a competitor had a government contract for drills on which the speaker had lost money last year.

A SPLICING FOR ENDLESS FABRICS.

A German inventor has recently obtained a patent in this country for a method of joining the ends in making endless fabrics, and gives the following description of the process:

Hitherto endless fabrics, such for instance as are employed in the manufacture of paper, have been made by the ends of a cloth made in the ordinary way, being joined by interweaving by hand and connecting the joints which resemble a self or independent edge thus formed, by sewing them together with wire. There thus resulted, even with the most careful workmanship, pronounced irregularities in the fabric. The meshes caused by the interweaving are soon stopped up by the paper pulp, and thus produce an uneven action of the cloth on the paper and require inconvenient cleaning.

The new method has for its object to provide means by which endless cloths may be seamlessly connected with one another or self edges may be formed and connected with a releasable and hardly visible seam, so that a cloth which is uniform over its entire surface is formed, the joints of which have none of the drawbacks of the methods of connecting hitherto employed.

The projecting ends of the warp at the edges of the fabric which are to be connected together are woven as weft into a warp corresponding to the weft of the fabric, with the object of making a seamless connection. In this manner any marking in the

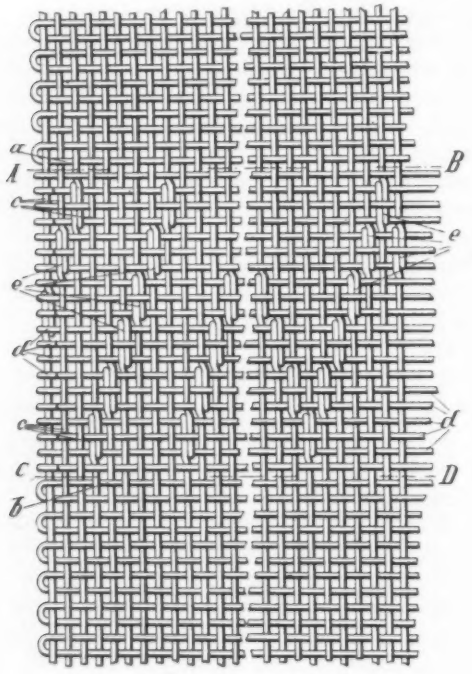


FIG. 1.

paper of the joints is avoided and it is thereby possible to insert an intermediate strip of any suitable length in the cloth belt in order to regulate the length of the cloth, and to repair cloths in the simplest and neatest manner possible.

As the connection can be made by mechanical means the invention is a considerable advance in view of the uniformity and the saving of expense as compared with the handwork hitherto employed.

Fig. 1 is a plan view showing the ends of a fabric joined by the improved method. Fig. 2 is a plan view showing the ends of the fabric releasably secured together. The joints of the encountering places of the warp of endless cloths made in accordance with this method are shown in two different arrangements, as examples.

The ends of the fabric made in the ordinary way, viz, the edges, a b, at which the warp, c, projects to a suitable length, are transversely inserted in a loom which has a warp, d, of the same thickness and kind as the weft of the fabric, and also of the width of the strip which is to be inserted between the ends. In this warp, d, the projecting ends of the fabric warp, c, are interwoven as

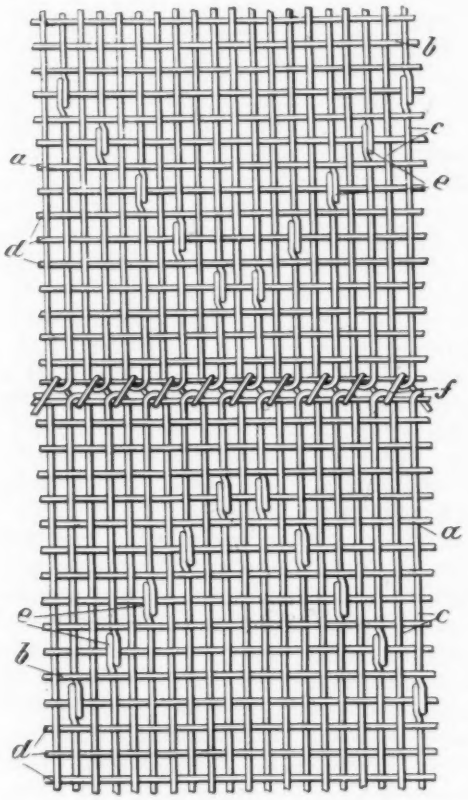


FIG. 2.

weft, so that between the lines, A—B and C—D, a complete fabric similar to the main fabric is formed. The places, e, at which the ends of the warps of the two edges, a and b, of the fabrics meet one another, may be suitably displaced relative to one another, and arranged so as to be uniformly distributed

over the interposed fabric as shown in the drawings, so that there is no appreciable interruption in the uniformity of the fabric which is seamlessly connected in the manner mentioned.

In a similar manner a piece of any suitable length may be interwoven between the ends of the fabric, by auxiliary weft of the thickness of the fabric warp, c, being also woven into the piece of fabric, which is to be inserted, in case the projecting warp ends of the fabric are not of sufficient length. By means of this improved method defective places in the fabric may also be repaired.

As shown in Fig. 2, the ends of the fabric are made with self edges formed by doubling back each alternate warp, c, to meet the adjoining warps; the warps, d, are then interwoven with these ends in the manner previously described. The places, e, where the ends of the warp meet are suitably displaced relative to one another.

The ends of the fabric thus formed with self edges are releasably connected to each other by means of the wire, f. By the above method of connecting the ends of the cloth, the sole interruption in the uniformity of the endless belt or cloth is extremely small and forms hardly an appreciable seam.

SELLING COTTON DIRECT TO SPINNERS.

BY CHARLES L. GAY.

(In the Cotton Journal.)

A business man is ever on the alert to find some way to better his condition. If he is a producer, naturally he desires a better market for his produce; in other words, his aim is to sell as high as the law of supply and demand will allow, but in this article I will not admit that the law of supply and demand in any way governs the price of our cotton. Our past methods of marketing three-fourths of the total crop in the fall of the year eliminated the law of supply and demand. The purpose of this communication is to give my own experience, and thereby show to my fellow planters how we may overcome great obstacles in the better marketing of our cotton crop. I attended the great convention of spinners and cotton growers at Atlanta in our first meeting of sellers and buyers. The trade spirit was naturally evident. The spinner wanted more and cheaper cotton. The grower wanted higher priced cotton, but found he must cut production.

In all the public speeches one spinner announced he was representing a co-operative buying company of Liverpool, composed of ninety large cotton mills in the Manchester and Lancashire districts. All the other spinners seemed to have their special brokers and cotton merchants, who supplied them, knowing their special needs as to grade and staple, but this Liverpool company announced they were ready to do business with the farmer or the farmers' warehouse, and visited us for the purpose.

I took down the gentleman's name, Thomas Coates, president Cotton Buying Company, 95 The Albany, Liverpool. I met him privately, discussed fully the details of cotton shipments with him. I found his company charged no commission to the shipper for selling, as it was a cooperative buying company. Each mill paid in a small commission of 1/2 of 1 per cent. Rates of insurance and storage were very much lower than in our country. Being a holder of cotton myself, I arranged with him to ship his company, during the fall season. On all shipments he loans 75 per cent. of the value of the cotton on his market at 5 per cent. interest. I will prove to you in this and my next article, in which I shall publish my account sales, that this 3/4 value advanced is in itself almost equivalent to what we ordinarily obtain in our local markets.

You readily see we then obtain cash money on our cotton, with which to pay obligations, and still own the cotton to be ordered sold at our pleasure. But note these instructions: Never ship less than fifty bales, all to be as near one grade and length of staple as possible. Ship in even running lots, 50 bales, 100 bales, 150 bales or 200 bales, etc. Ship nothing below low middling grade unless advised.

I inclose a letter from the company, which please publish in connection with this article. In my next I will give my account sales

of the most satisfactory cotton shipment I ever made. Charles L. Gay.

Following is the letter received by Mr. Gay from Joseph Kennedy, representing a cotton company, Liverpool, England:

We confirm our last letter to you dated the 2d inst., since which date the Serra liner Gracia has arrived here and has landed your (C. Gay) 50 bales cotton, which we have warehoused here in Liverpool, all in good condition. We have insured the cotton fully against loss by fire and will remain so waiting your instructions for sale.

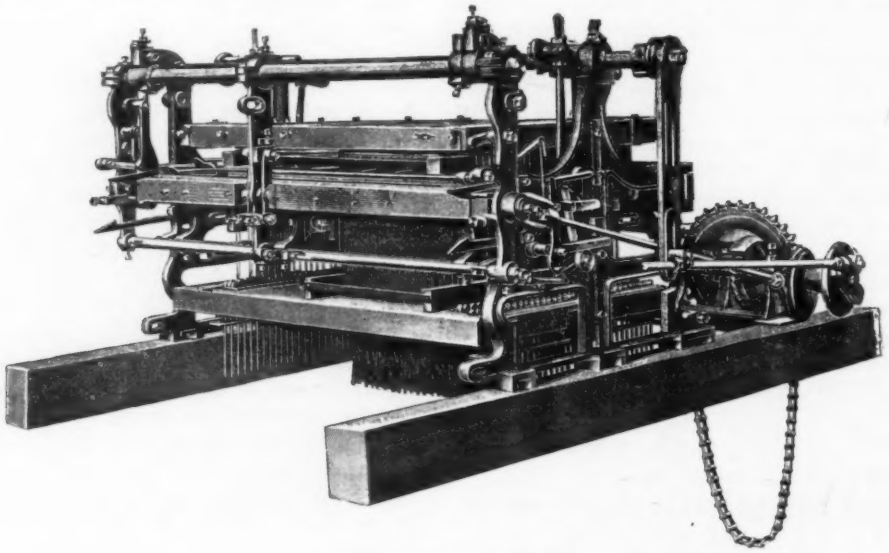
We are pleased to say on examining the actual cotton here, we find it better than the express sample which you sent us. The express sample was fully middling in grade, but we now find the actual cotton to be good middling, with good color. The staple of the bales is rather irregular, about half the bales are very good staple, and remainder just moderate. Today's value is 5 1/4d. (10 1/2c.) per pound, and if we had instructions to sell we might be able to get a few points over that figure.

We send you inclosed in this letter a bank draft of the London City and Midland bank, Liverpool, for $1,800, drawn upon and payable at the Fourth National Bank, Montgomery, Ala. When you get the draft please sign and return to us the inclosed receipt by first mail, so that we may know it reached you safely. The rate of exchange which we got for this remittance is 49 3/8 pence per dollar, or $1,800 equal 370 pounds 6 pence and 3 shillings, which we have placed to debit of your account.

In respect to your holding over this cotton for four months (which it appears to us from your letters to be your intention) you will please remember that the cost of holding for four months (interest, rent and insurance) will come to about 15 points of a penny per pound on the cotton. In other words to sell now at 5.25 pence or in four months at 5.40 pence will only realize the same net cash. You should consider this.

A LARGE JACQUARD MACHINE.

The Oscar Schleicher Machine Works, Greiz, Germany, have recently built the largest jacquard machine ever turned out of their shops. This machine is built especially for damask fabrics and has 10,560 hooks controlled by 3,520 needles. All the parts are of extra strength. The machine, which is shown in the accompanying illustration, is driven by a chain from the upper shaft of the loom. The weight of the complete machine, including all driving parts, is 4,000 pounds.



A LARGE JACQUARD MACHINE.

CORRECTION.

By an oversight which we very much regret, we omitted to give the Journal of The Society of Dyers and Colorists credit for the article on Chlorinated Wool by Mr. H. P. Pearson, which appeared on page 141 of our April issue.

THE BRADFORD AND FRENCH SYSTEMS OF WORSTED SPINNING.

BY JOHN BROWN.

By the Bradford system the spinning is generally done on cap, fly or ring frames; with the French system mules are almost invariably used; while the two systems of drawing are entirely different. After the two first gill boxes, which are similar in both systems, in every succeeding process of the Bradford open drawing, a certain amount of twist is put in the strand to bind the fibers together. With the French drawing and spinning no twist whatever is used until the yarn is spun on the mule. The term "drawing" includes the various processes through which the combed top sliver is passed until it becomes roving ready for spinning. The standard weight for 60s tops is 4 ounces per 10 yards. As a 60s top with fibers up to 5 1/2 or 6 inches long will stand a draft of 5 or 6 to 1, the various doublings in the different boxes, as well as the number of boxes, are so arranged that when the roving stage is reached, the sliver shall weigh 2 drams to 40 yards. Then with a draft of about 6 to 1 on the spinning frame, a thread 60 yards long will weigh 12 1/2 grains. The worsted count indicates the number of yards in 12 1/2 grains. Thus 12 1/2 grains of 40s will measure 40 yards in length. The size of tops is indicated by the number of ounces in 10 yards. The size of sliver from the first and second weigh boxes and of the roving is indicated by the number of drams in 40 yards. Any required calculation for alteration either in draft, doubling or number of processes can easily be made by keeping these bases of numbering in mind.

A sliver must never be drafted the same way twice in succession, or unevenness will result.

In the earlier stages of drawing both the Bradford and French systems employ the first and second gill boxes, shown at Fig. 1. In open drawing the sliver coming from the first spindle gill is wound on to the bobbin by means of a flyer, shown at Fig. 8, thus putting in a small amount of twist. In French drawing the sliver is wound into a ball, as the top is wound in the finishing box after combing. A light tube of wood or paper prevents the ball from being crushed by handling. The need for twist is obvious when we take into account the weight of the bobbin on which the sliver is wound, and the fact that the sliver has to drag the bobbin around as it is going

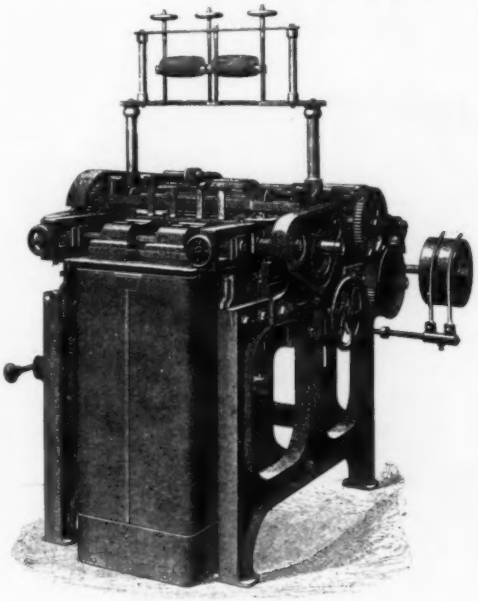


FIG. 1.

through the next process. These bobbins are put in overhead creels, as shown in Fig. 11 (reduced), while in the French system, the balls or bobbins are fixed upright on pointed spindles, or are unwound by lying loosely on driven rollers, thus obviating nearly all friction and doing away with any drag on the slivers.

In open drawing only one sliver is put on each bobbin no matter how many separate slivers may be fed at the back of the box. This is another reason why twist is needed. In French drawing the slivers from 2 rollers are fed on 1 bobbin, thus counterbalancing any slight amount of drag in unwinding. For this reason there is very little liability of unevenness through this cause.

The twist that is put into the slivers in open drawing binds the fibers in rope form. If there is either overdrafting or short ratching it will result not only in uneven sliver but broken fibers, which not only

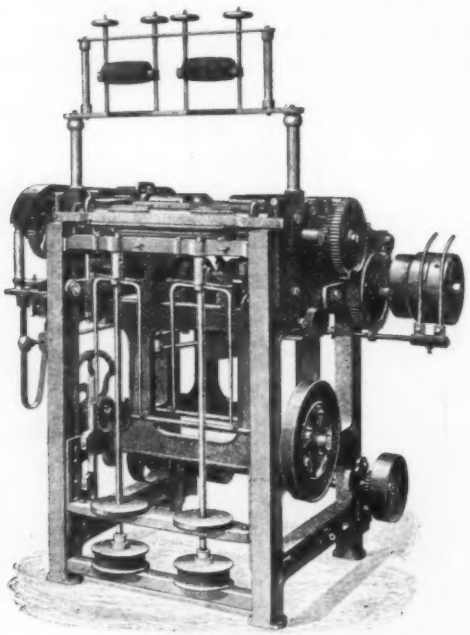


FIG. 2.

makes the material more difficult to spin, but results in an inferior cloth when woven.

To prevent this as far as possible, the back rollers are always set a longer distance from the front rollers than the longest fibers in sliver. Between the back and front rollers there are from 2 to 4 rows of carriers which act as steadiers to the thread while it is being reduced in thickness on its passage from the back to the front rollers, as shown in Fig. 3. The carriers have a higher surface speed, although smaller in diameter, than the back roller. The top carriers, which are made of wood and not weighted, allow the drawing process to go on, and yet by their slight retarding motion prevent the short fibers from sliding to the front rollers as soon as they are liberated from nip of the back rollers.

A guide, shown in Fig. 3, is placed behind each back roller, which is fixed to a traversing rod. This by slowly moving from one edge of the roller to the other is constantly changing the position of the sliver on the surface of the roller, and prevents the thread wearing a groove in any part of the roller, which lengthens the life of the leather-covered top front roller.

The essential difference between the two systems is that the Bradford employs twist in the drawing, while more rollers are used in the French system. In the French system brass rollers filled with fine comb pins, called porcupines, are used in place of the carriers. These porcupines not only serve as retarders during the reducing process, but also thoroughly separate the fibers, as shown in the top view of the drawing rollers, Fig. 4; Fig. 4a is a side view.

In order that the edges of the sliver may

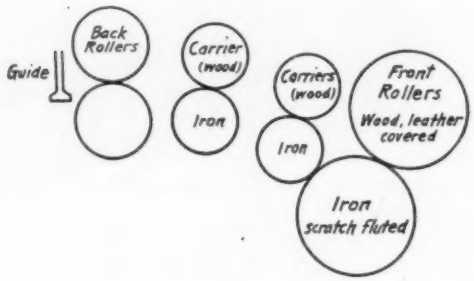


FIG. 3.

be bound in, thus preventing clicking during unwinding, the sliver passes through 2 pairs of rubbers, which have a rapid vibratory motion, while at the same time the rollers are revolving at the same speed the sliver is traveling. All the loose fibers are rolled in in the same way, as if an open sliver had been rubbed backwards and forwards in the palms of the hands. Over the front and back rubbing rollers, both top and bottom, sheets of leather constantly travel, not only rubbing but gently conveying the sliver to the balling head.

Another method of rubbing the sliver together, without using the belt form of rubbing leathers, is to use wood or metal

cylinders faced with leather, Fig. 5. These furnish more regular and better rubbed slivers. The rubbing is effected by passing the sliver through 3 rollers which are of equal diameter, and are arranged pyramidically between the front rollers and the balling rollers. They are set in continuous rotation to allow the sliver to travel to the bobbin. Like the rubbing belts they have are connected by levers, 3 and 4, to shafts 5 and 6, which receive an opposite reciprocating movement, as in the case of ordinary rubbers. The height of the upper disc, 1, can be easily adjusted. The sliver is drawn through the funnels, F, and between the rubbing discs, 1 and 2, by the roller, 7, and is wound upon the bobbin, 8. This arrangement is very durable and lessens the

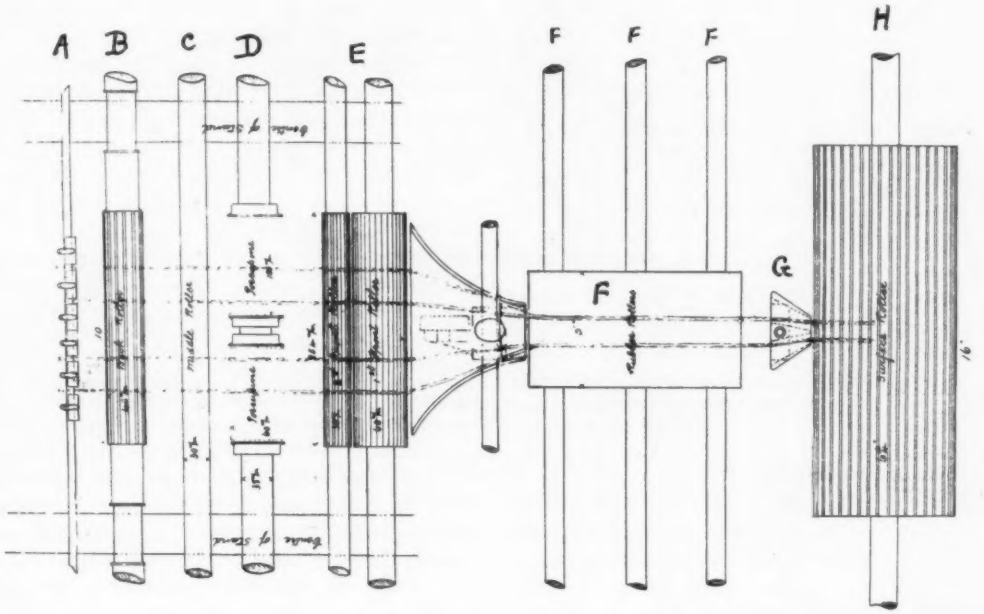


FIG. 4. A, GUIDES; B, BACK ROLLER; C, MIDDLE ROLLERS; D, PORCUPINE; E, FRONT ROLLERS; F, RUBBER LEATHERS; G, GUIDE FUNNEL; H, WINDING ROLLER.

a vibratory motion so as to rub and roll the sliver continuously. For finer qualities the weight of the top roller is sufficient to accomplish this, but if required the roller can be weighted either by springs or weights. It has a reciprocating horizontal motion, always in the opposite directions to the bottom roller. Another method consists in the use of metal discs, Fig. 5a, instead of endless belts or rollers.

The discs are slightly fluted and are placed one over the other, the sliver to be rubbed being guided by the funnel, F. One pair is provided for each head. The discs waste and breakage. The output can be increased, while the motive power is reduced. This system is displacing leather rubbers.

The distance between the nip of the front roller and the tip of the flyer in open drawing, and the distance between the delivery of rubber and the center of the balling roller in the French system, always remains the same up to roving. In cap or flyer spinning frames, notwithstanding the movements of the lifter, the distance between the edge of the cap or the eye of fly and the front roller nip is always the same. In the mule the

distance from nip of front roller to tip of spindle is constantly changing.

Fig. 5 illustrates the advantage of mule twisting over that obtained in open drawing

(Fig 4a)

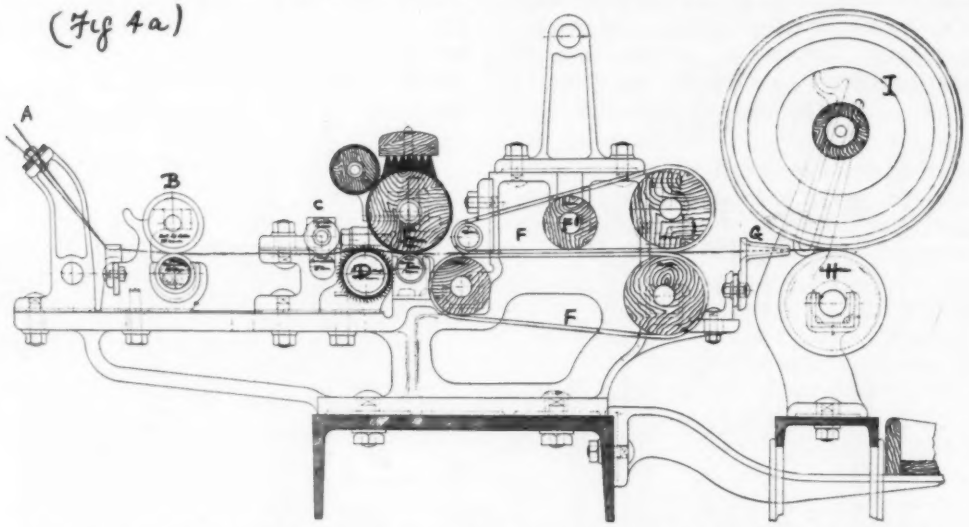


FIG. 4A. A, GUIDES; B, BACK ROLLER; C, MIDDLE ROLLER; D, PORCUPINE; E, FRONT ROLLER; F, RUBBER LEATHERS; F1, PRESSURE ROLLER TO KEEP LEATHERS IN CONTACT WITH WOOL; G, GUIDE FUNNEL; H, WINDING ROLLER; I, BALL OR BOBBIN.

and throstle spinning. In the mule, Fig. 6, the top of the spindle and nip of delivery roller are on a level and the action of the spindle puts the twist in right up to delivery,

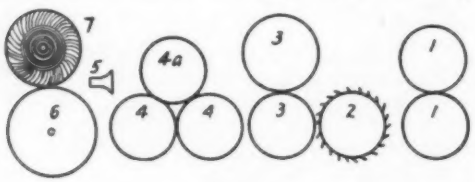


FIG. 5.

not only making a better and more even twisted thread, but also one with less liability to break. In very short wools this is a decided advantage.

In the throstle frame, in spite of many attempts to overcome it, after the thread has left the nip, owing to the angle at which it had to travel, it rests for a short distance on the surface of the roller, thus preventing the twist operating as close to nip as in the former case. Setting the top roller in an overhanging position to bring nip lower has been tried, but this takes the nip of front roller so far away from the top of the carrier as to be a great disadvantage. Others have tried setting the spindle rail at an angle of 45°, resulting both in an unsatisfactory build of bobbin and doffing. Up to the present no satisfactory approach to the efficient twist in the mule has been reached.

Owing to the carriage receding to the rollers as the yarn is wound on the cop, less twist is required than in the throstle spinning, where if the thread was being wound on bare spindle as in the mule, the twist would have to be excessive to prevent breakage. The absence of drag in the mule is another great advantage. This is a more serious matter than it appears at first, especially when using short and tender wools.

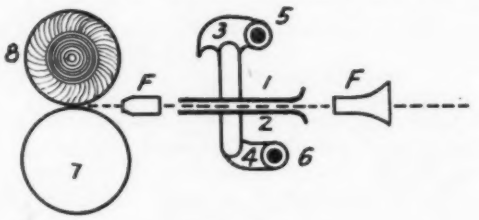


FIG. 5A.

(To be continued.)

MANUFACTURE OF SHODDY AND SHODDY GOODS IN GREAT BRITAIN.

REPORT BY U. S. SPECIAL AGENT W. A. GRAHAM CLARK.

The amount of manufactured wool that is remanufactured in Great Britain every year is considerably more than the total wool clip of the country and makes up one-fourth of the total animal fibers employed. The Bradford Chamber of Commerce estimates that of 262,300,000 pounds of unused wool, pulled wool, mohair, etc., manufactured in 1857 some 35,000,000 pounds, or 13.3 per cent., was shoddy materials, and that of the total of 850,300,000 pounds total in 1907 some 210,000,000 pounds, or 24.7 per cent., was shoddy materials.

A hundred years ago wool waste and old rags were disposed of by burning or by being used as fertilizers, but they now enter largely into the clothing requirements of the world, and by their cheapening effect have done much to popularize woolen clothing for the masses. The increasing use of waste materials and of by-products of manufacture is a sign of the increasing economic efficiency of mankind, and as the world is rapidly becoming more and more crowded the economic use and re-use of all available fibers will become of more and more importance.

The manufacture of shoddy in Great Britain seems to have started at Batley, in Yorkshire, about 1813. The total consumption is as yet only estimated, but the official import figures dating from 1860 seem evidence enough to prove a steady increase. The import of shoddy materials into Great Britain has been as follows:

	Pounds.		Pounds.
1860.....	16,824,000	1890.....	77,638,400
1865.....	32,670,400	1895.....	84,257,600
1870.....	38,555,400	1900.....	68,757,800
1875.....	56,929,600	1905.....	91,932,587
1880.....	92,433,600	1906.....	99,892,110
1885.....	73,133,600	1907.....	113,423,418

It is estimated that nearly as much shoddy material is obtained in Great Britain as is imported. In the last fifty years the proportion of shoddy to the total animal fibers used has increased from about an eighth to a quarter. The proportions for the last ten years, as estimated by the Bradford Chamber of Commerce, are as follows:

Year.	Total animal fibers.	Shoddy.	Shoddy (per cent. of total).
	Pounds.	*Pounds.*	
1898.....	724,600,000	125,000,000	17.3
1899.....	677,200,000	125,000,000	18.4
1900.....	654,600,000	130,000,000	19.7
1901.....	704,200,000	135,000,000	19.2
1902.....	667,000,000	140,000,000	21.0
1903.....	625,600,000	140,000,000	22.4
1904.....	643,600,000	180,000,000	28.0
1905.....	681,700,000	180,000,000	26.4
1906.....	734,300,000	190,000,000	25.9
1907.....	850,300,000	210,000,000	24.7

The percentage of reworked wool to the total is therefore about 25 per cent., without including the large amount of cotton that is mixed with the shorter qualities to bring up the strength. While very little shoddy is manufactured by itself, cotton, cotton waste, unused wool, or other material nearly always appear in the finished cloth as warp or mixed in the yarn itself. On the other hand it is admitted in Yorkshire as a well-known fact that there is not produced there a very large amount of woolen yarn that contains only unused wool.

SUPPLY OF RAGS.

Great Britain imports rags from nearly every country in the world, as also does Germany, while the United States depends entirely on its home supply. The fact that the American manufacturers are restrained from competition in outside markets enables Great Britain to obtain her rags cheaper than she would otherwise be able to do and also makes the cost of raw material higher to the American manufacturer.

EXTENT OF FACTORY OPERATIONS.

Shoddy manufacturing in Great Britain centers in the two neighboring towns of Batley and Dewsbury, which lie in the heavy woolen district in the West Riding of Yorkshire, in northern England. These two places, lying about 1 1/2 miles apart, have almost a monopoly of this trade, and of the 908 rag machines in Great Britain in 1904, no less than 881 were to be found in Yorkshire, the bulk of these being in this heavy woolen district. Of the 908 rag ma-

chines employed in this industry 566 were in the regular shoddy mills, 329 were employed in woolen mills, and 13 in worsted mills. The extent to which shoddy is used in the woolen trade is evidenced by the number of rag-grinding machines employed by woolen mills, and also by the fact that the bulk of the so-called "shoddy mills" only prepare the material for use in woolen mills. Of 161 shoddy mills in 1904, only 23 contained a complete equipment for preparing, spinning, and weaving shoddy, 2 had looms only, 4 had spindles only, 22 had rag-grinding machines and carding sets, and 110 had rag-grinding machines only.

The 1904 statistics of the British Government listed only the machinery, while the latest figures in regard to the operatives are those of 1901. The progress of the industry and its fluctuations are partly shown by the following:

	1867.	1874.	1885.	1889.	1904
Shoddy mills	108	125	108	125	161
Rag grinding machines					566
Woolen carding sets					319
Spinning spindles:					
Mules	7,319	101,134	93,766	94,404	73,418
Frame					400
Doubling spindles	4,228	946	2,222	691	2,520
Power looms	1,095	1,437	1,981	2,284	31,432
Children working half time:					
Male	140	187	67	84	.....
Female	72	135	25	50	.....
Persons working full time:					
Male	1,398	1,384	1,832	2,138	.....
Female	1,585	1,725	2,785	2,231	.....
Total persons employed	3,206	3,431	4,709	4,503	.....

It is seen that very few children are employed in this trade and that there are more men than women, which in both instances is also true of the woolen trade, while in the worsted trade women and girls form the bulk of the operatives.

Besides the rag machines employed in making shoddy in shoddy, woolen and worsted mills, there are 103 rag-grinding machines and 225 carding sets employed in 67 factories in which felt and flock processes are carried on. These factories are mostly situated in Gloucester and London.

In the commercial handling of the rags and of the rag wool before finally weaving into cloth in England, there is a highly organized trade system, admitting, however, of many variations. Ordinarily the following handlers from "cloth to cloth" are: (1) the itinerant rag gatherer; (2) the marine-stores dealer in small town; (3) the marine-stores dealers at London or other large town; (4) the rag sorter or shoddy dealer; (5) the rag puller or shoddy manufacturer; (6) the woolen-cloth manufacturer. In former days the itinerant rag gatherers frequently sold to small mills, but the trade has gotten too highly specialized for that now, and with the many types and grades required middlemen have become a necessity. He sells to the local rag dealer or "marine-stores dealer," as he is usually called, and this man may sell a special lot he has collected direct to a shoddy maker, though ordinarily he sells to larger dealers in London or elsewhere, who collect large quantities and sort into general classes, according to whether the rags are new or old, all wool or cotton and wool, etc., and then sells special lots to rag sorters or shoddy merchants, as they are called. These men sort the rags according to type of cloth, grade, color, etc., and then sell specific lots by sample to the shoddy mills. As previously noted, the main business of the shoddy mills is making shoddy, not working it up, so after one more careful sorting of rags are pulled by the shoddy maker, and then the material in its original raw fiber state is sold to woolen manufacturers for manufacturing into cloth.

BUYING AND WORKING UP RAGS.

From abroad the rags are imported by merchants in the heavy woolen district or occasionally by the manufacturers themselves direct. If imported by the merchant he may sell to another merchant those of a certain type, or to a large puller, or may sell at the auctions. There are five houses in Batley that carry on weekly rag auctions in the same way that wool auctions are carried on in London. The rags sold may be the property of the house selling or may be with them on consignment from abroad or from another merchant. The man who owns the rag-pulling machines, therefore, may either buy direct or through many other hands, according as it suits him.

There are a few firms at Batley who pull, carbonize, and even card on commission, but this is the exception and there is comparatively little of this class of work. The bulk of the pullers buy their own rags from the rag sorters, already sorted according to the classes they desire, then re-sort carefully, once at the mill for staple, color, etc., and then tear up into their original fibers on the rag machine, finally selling each uniform lot separately to the woolen mills. Some of the large shoddy makers card the rag wool after pulling, and some buy rags and turn out finished goods ready for the market, though two-thirds of the shoddy mills have rag machines only.

In a complete shoddy mill—which, as before noted, is very rare—the following would be the list of processes: Rag shaking, extracting, dyeing, sorting, oiling, pulling (or garnetting), blending and oiling, teasing and tenterhook willeying, carding, spinning, weaving, scouring, raising or milling, finishing, and pressing.

Whether the rags go through all or only part of these processes depends entirely on the quality of the original cloth and the kind of goods to be made therefrom. "All-wool" cloths will of course not be subjected to the extracting process. If the rags are of a uniform color, say a good lot of ladies' blue serges, they can be run through and used to make yarn of the same color without redyeing, but if part of them are faded they will need to be redyed. Rags are run through the rag machine, or devil, and mill waste through a garnetting machine. Blending, teasing, or willeying may or may not be required. The finishing processes will vary according to the kind of goods. There are many variations, so that the cost of working one lot of rags may be several times as much as the cost of working another lot.

I will briefly describe the machines as used in the Batley and Dewsbury shoddy mills and then give the complete detailed first cost and operating cost of a forty-loom shoddy mill making low tweeds. [A sample of this cloth may be seen at the Bureau of Manufactures.]

SORTING AND OILING.

The foreign rags arrive at the shoddy mill in hooped bales weighing 6 to 8 hundredweight (English hundredweight = 112 pounds), while the British rags usually come in sacks weighing about 140 pounds each. The contents of each sack are first run through a rag-shaking machine to remove the dust, dirt, etc., and make them better for handling. They have been through several sortings before arriving at the factory and are in a fairly well-sorted state, as each manager tries to buy as uniform lots as possible of the special type he requires, to save work at the mill. There is always, however, one final sorting according to staple, color, etc., at the mill before oiling and pulling. This sorting is usually done by women, who open up one of the large sacks in which the rags come from the rag-shaking machine and throw the different kinds and colors into adjacent sacks. Owing to the many different grades sorted at the ordinary mills these women are not usually paid by piecework, but by the week. They average 12 to 15 shillings ($2.72 to $3.65) a week, though sorters on high-class work may make up to 20 shillings ($4.86) or over. Rags are only washed in exceptional cases. If necessary to dye, the dyeing is done before the rags are torn up.

After the rags have been shaken and sorted each pile is spread out on the stone floor in a space about 10 feet square and oiled, using an equal amount of oil and hot water and spraying it on with a can by hand. Usually in the rag trade black or brown oil that has been recovered by squeezing oily wool waste is used, in the proportion of 5 to 10 per cent. of oil to the weight of material worked. For high-class shoddy more costly grades of oil are substituted. The oil facilitates the working of the materials and incidentally it also decreases the cost of pulling by reason of the weight added; for, after allowing for a certain amount of evaporation and loss in the process, the resulting shoddy will weigh more than the rags out of which it was made.

(To be continued.)

Questions and Answers

Under this head we undertake to answer, free of charge, to the best of our ability, any pertinent inquiry pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD RECORD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring ,not for publication, but as an evidence of good faith.

For reply to questions that are not of general interest to readers of textile journals, such as those relating to the composition of yarns, analysis of fabrics, etc., we will charge the enquirer with the cost of the investigation.

Standard Length and Width of Cloth.

Editor Textile World Record:

Will you please advise me what standard, if any, of length and width of cloth are used in the testing machines for determining the strength and elasticity of the fabric.

Western (1110).

There is no official standard in the United States for the size and standard of cloth to be tested for strength and elasticity. The size mostly used by the United States Government and others is a sample long enough to fit in the jaws of a testing machine so that the jaws will be one inch apart when ready for the breaking load. The width of the sample should be one inch. The jaws of the machine are in many cases also one inch wide. In the testing of khaki cloth by the other departments of the United States Government the sample tests are cut four inches long and the full width of the cloth and the tests made in one-inch grips or jaws placed one inch apart and in the center of the sample. This is called "testing in the cloth."

A large mill that makes cotton fabrics uses a piece two inches wide and long enough to fit in the jaws of the machine so that the distance between the grips or jaws will be three inches before the strain is applied. The sample cloth is unraveled on each side equally to reduce the perfect cloth as nearly to one inch in width as the picks or ends will allow. The jaws in this case are two inches wide.

In England the Manchester Testing House cuts a sample of cloth about twelve by seven inches and then tearing out the side threads sufficiently to reduce the sample to a width of six and five-eighths inches, and when placed in the jaws of the machine they will be six inches apart. This size is the standard for the Government of Great Britain.

The German Government uses a sample of cloth three inches wide and long enough so that the jaws will be five inches apart.

It is unfortunate that the early testing machines in this country adopted one-inch jaws as wider jaws would give more equal results.

Planet.

Prices Paid for Winding Yarn.

Editor Textile World Record:

What is the price per hundred pounds that is paid for winding cotton yarn from cones on to bobbins, also price per hundred usually paid for winding worsted yarns from cops to bobbins?

Adams (1113).

For the following list of yarns these prices are generally paid:

Cotton.		Worsted.	
1/7	$ .35	1/20	$1.00
1/8	.35	1/30	1.50
1/14	.45	1/40	1.75
1/16	.45	1/50	2.25
1/18	.50	1/52	2.25
1/20	.50	1/22	1.00
1/24	.60		
1/25	.60		
1/60	1.00		
2/28	.45		
2/30	.45		
2/40	.50		
2/50	.60		
2/60	.70		
2/80	.80		

I have not got the regulation figures at hand but I give you here the prices I am at present paying and do not believe that they will be found far out of the way for good winding. These prices could be lowered by giving a hand more ends to wind than they could take care of and give the best results. They might also be lowered where help is plentiful and labor cheap but the prices

would have to be very close to these in scale. I believe that any attempt to lower the worsted prices unless the yarn winds exceptionally well would be more than offset at the knitters. Madison.

Dye House Records.

Editor Textile World Record:

I wish that you would publish an article on dye house records showing the books and blanks necessary to keep a systematic record of the work done in a dye house running on raw stock, yarn and pieces. Lenox (1028).

This question opens up a wide field for discussion and one that cannot be answered to suit all requirements. In operating dyeworks or a mill of any kind it is necessary to have a system and follow it. We are operating on yarns and piece goods, but not on raw stock. Separate books are kept for yarn and piece goods. The system I am about to explain is very good, in fact almost perfect, as you can trace the goods back through each process. I presume that the correspondent receives the goods from outside firms to bleach, dye and finish, returning them to the manufacturer. This being the case the first book required is the stock book which is left in the receiving or grey room. This can either be a bound or loose leaf book, but in this case I think a loose leaf more suitable. These are ruled off as in Figs. 1 and 1a, and all goods received are checked and entered into this book. It is then sent to the office probably twice a day to be entered into ledgers which are alphabetically arranged. These ledgers are ruled to suit requirements.

The goods are received, checked, entered on book and put in the store room. Other books will be required to keep track of the goods while they are in the different processes. One of these books is called the "Bleachery Record," Fig. 2. As each lot of goods are entered into kier they are recorded. One slip is for the bleacher which he hands to the dyer, after recording, and when the goods are dyed, he in turn hands the slip to the finisher; after the record is made the finisher hands in the slip to the office. A duplicate of each record, signed by each overseer, with the date, etc., as shown by Fig. 2, is kept in the office.

In order to trace the goods through each process, the slip called the "lot tracer," shown at Fig. 3, is used. Each lot is entered on this slip and handed to the bleacher, who in turn gives them to the mangler, and as each lot is mangled the tracer is tied on one corner, on which the mangler signs his name and the date, also stating the condition of the

Yarn – Stock Book

Date		Bundles	Wt. per Bundle				Total Wt.	Kind	Color	Order No.	Date put in process	Firm
			5	5	4 15/16	5						
Jan	6/07	20	5	5	5	5 1/2	99-13 1/2	2/16	Black	1048	8/2/07	J. Smith & Co.
			4 15/16	5 1/16	5	4 15/32						
			5	5 1/16	5 1/16	5						
			4 15/32	5	5	5						

FIG. 1.

goods and any other information that may be necessary. This is then handed to the dyer. The dyer follows the same rule, likewise the dryer, stretcher and all who handle the goods. In this way the goods can be traced back. In addition to this tracer we have the time report for each man, shown at

In the finishing department extra care is necessary to insure the goods coming out right. The yarns are pressed, packed, parcelled up and made ready for shipment. The piece goods are folded, cut, inspected and made ready for shipment. The folders, packers, inspectors, etc., all have their time

Piece Goods - Stock Book

Date		Pcs.	Lbs.	Yds.	Width	Style	Order No.	Ave. Yds. per lb.	Date put in process	Color	Finish	Remarks	Firm
Dec	12/06	100	1467	6197	38½	A.R.	A 36	4.22	3/6/07	Cream	Reg.		J. Ashwright
	13/06	96	1119	6150	40	B.K	H 103	5.49		Blk	Spec.	Finish to pattern	H. Smith
	13/06	220	3000	13442	39	A.C.	K 14	5.47	3/6/07	Lt Blue	Reg	- a little brighter	B. Jones & Co
	14/06	140	2138	8774	40	B.C.	K 15	4.03	3/6/07	Dk Brown	As last	To be full 37"	
	15/06	40	358	2585	38½	#8	K.M.	7.22		Blk	Reg		H. Garlands

FIG. 1A.

Bleach-house Record

Kier No. A8 Date put in process 3/6/07

Pieces	Lbs.	Yds.	Style	Color	Finish	Remarks	Finished Width
100	1467	6197	A.R.	Cream	Reg.		36
220	3000	13442	A.C.	Lt Blue	Reg.		36
140	2138	8774	B.C.	Dk Brown	As last	To be full 37"	37

FIG. 2.

Fig. 4. These are collected by a boy who checks the time with the time registered by the clock, check or other system in use. These are filed and these time sheets should correspond with the "Lot Tracers" as to the time and date each lot was finished. In this way an account is kept of the time spent on each lot of goods, the location of the goods and how much work the man does.

sheets showing the amount of pieces handled during the day. The goods are entered in a rough book as they are placed on the table. It is well to have two books, one for the clerk to make his report from, Fig. 5. The goods that are cased ready for shipment are checked by the packers and by the clerks on their weekly report and the goods shipped as per the case slip, Fig. 6, which should bal-

ance and show the output, the goods shipped and the goods received, less what is in stock.

Kier No B1

Lot Tracer

Date 4/6/06 Goods are tracked up 4 H

Machine	Pcs	Lbs	Yds	Width	Remarks	Date	Name
1st Mangle	140	2138	8774	36"	Very Good	5/6/06	A S
2nd "							
*1 Jigger	140	2138	8774	36"	Stains in dyeing	8/6/06	H.O.
*2 "							
*3 "							
*4 "							
*1 Dryer	140	2138	8774	36"	Stains	9/6/06	M.K
*2 "							
Sprinkler	140	2138	8774	36"	Double Selvedge	9/6/06	D.A
Stretcher							
Beetles	140	2138	8774	36"	Few Pcs damaged	10/6/06	R.h.
Back Fill							
R. Mangle							
3 Bowl Cal	140	2138	8774	36"	Finished for room	11/6/06	A P
5 " "							
7 " "							
Conroy							

FIG. 3.

We use a carbon and take three copies of the list of goods shipped, one to put in the case, another for the office to be entered on the ledger and one to be filled in the packing room.

These books and forms are all used in the works, the office having ledgers of the loose-leaf system. Every three months a quarterly statement is taken. We have books for the daily sales which are balanced daily and at the end of the three months they are arranged alphabetically; A sales during the quarter, B sales, etc., and each sheet is balanced. In addition to this we have blank books to be used in the storehouse for material used and each department enters an order on these books for any material he desires. These blanks are in duplicate, one is sent to the office and the other is kept in the mill. These are shown at Fig. 7.

Operator John Henshaw

Machine 10 Bowl Calender

Date 5/7/07 7-6

Pcs.	Style	Kier No.	Runs	Remarks
100	A.R	A8	1	In good condition
40	B.C	A8	2	Several damaged & dirty
				1½ hrs. cleaning the expander

FIG. 4.

THE BARON DYEING CO

Finishing Room Report Week ending 4/3 1907.

Style	Pcs.	Lbs.	Yds	Ave Yds per lb	St'd	XX	X	Sec.	P.C. XX	P.C X	P.C Sec.	Bad Wearing	Holes & Damage	Stains	Starch	Dirty	Yds. of Remnants
	77	962	4705	$4\frac{87}{100}$	$4\frac{85}{100}$	39	41	7	$37\frac{66}{100}$	$53\frac{25}{100}$	$9\frac{09}{100}$	2	2	1		2	4
	75	1128	4996	$4\frac{43}{100}$	$4\frac{55}{100}$	60	11	4	$80\frac{80}{100}$	$14\frac{67}{100}$	$5\frac{33}{100}$	1		2	1		467

FIG. 5.

Henry Douglass.

Trimmers on Loopers.

Editor Textile World Record:

Would you suggest putting trimmers on loopers in a hosiery mill and if so please state your reasons? Allen (1111).

the looper girl will not be able to close more than 20 to 25 dozen per day of 180 needle work. The cost of looping will be about 7 cents per dozen. If trimmers are used the same girls can close from 35 to 40 dozen per day at a cost of 4 cents per dozen. If extra girls are employed to do raveling, one girl will ravel for 2 or 3 loopers and the extra cost will be about 2 cents per dozen. I have found it advisable to use trimmers on all loopers in hosiery mills, as there is an increase in production of from 50 to 75 per cent. The cost of looping is reduced from 50 to 75 per cent. Unless trimmers are used it is necessary for the looper girl to ravel her own work, or have extra girls for raveling. If the former method is used have found the trimmers to be thoroughly practical and to increase the production of the loopers, reduce the cost of looping per

THE BARON BLEACHING AND DYEING CO.

Contents of Case Order No. 3138

Date	Pkg. No.	Wt.	Pcs.	Yds. of Pieces	Total Yds.	Style or Brand	Marks	Time Due	Date Shipped	Remarks
Jan 11/08	5549	320	24	61 63 62 60½ 60 61½ 63 65 62 60' 65 64 61½ 63 60' 64 60 62 60' 63 65 61 68 61	1496½	A R	BJ CO	Jan 10	Jan 11	

Called by O.H. Ent. by B.A. Chk. by J.P.

FIG. 6.

Memorandum Date 3/4 1907

THE BARON BLEACHING AND DYEING CO.

From Dye House To Suppliers

Kindly supply

100 lbs Glaubers Salts
100 " Soda Ash
100 " Sodium Sulphide
50 " Common Salt
1 Carboy Sulphuric Acid

J. H. L.

Delivered 3/4/07 A. B.

FIG. 7.

dozen, reduce the number of loopers required to operate, and reduce the amount of help required. Merrill.

Washed English Wool.

Editor Textile World Record:

I notice in your June, 1909, issue reference to the practice of washing English wool on the sheep's back with a solution of soda. It would seem as if, under the present tariff bill, wool so washed would be subject to the scoured wool duty on 33 cents a pound. Paragraph 355 of the Dingley law is as follows:

Unwashed wools shall be considered such as shall have been shorn from the sheep without any cleansing; that is, in their natural condition. Washed wools shall be considered such as have been washed with water only on the sheep's back, or on the skin. Wool of the first and second classes washed in any other manner than on the sheep's back or on the skin shall be considered as scoured wool.

As this is rather an important matter I should like to have you investigate the statement that English wool growers wash the wool on the sheep's back with solutions of soda.

Cotswold (1106).

Our English correspondent replies to this question as follows:

As a boy I have assisted in sheep washing and sheep dipping and have never seen soap or chemicals used. The regular practice is to wash the animal in clear water in a river or stream, usually where the water is waist deep. Hurdles are set up to form gangways and pens to prevent the escape of sheep down the river. To set against the report "Cotswold" refers to, there is the stock complaint that English farmers as a whole do not take enough care in washing their wool and it can be said now that the use of soap is not universal. You refer to sheep in my locality. They are all black ones and are never washed. Mill soot carries far over the mainland. I saw on a golf course the other week an absolutely bald sheep and another half bald, their fleeces peeling off and flapping ridiculously in the wind. This is caused by disease, of course, but the sight of them led me to wonder what astounding version of the facts some of your tariff witnesses would have rendered.

Large dealers tell me that it is very rare for them to see the tub washed wool. In brook washing soap is not usually employed, the animal gets a good rubbing under water and is then released. Romulus.

Indigo Red.

Editor Textile World Record:

Is there such a red as Indigo Red? If there is what is the simplest test by which you can detect it? What are the colors that are obtained from indigo, and is there any general rule or test for detecting them? How does indigo compare in fastness to the other dyes used on cotton?

Philips (1108).

There are several new classes of colors closely related to indigo in their general properties, but which are not obtained from it, but from the same sources which yield indigo pure and allied products. The new groups of dyes asked about are those comprising indanthrene red, algol red, ciba red, helindone red, thioindigo red, etc., all of which have been very fully described during the past two years.

These new colors are applied to cotton by a process practically the same as for indigo, and are hence called "vat reds." The simplest test to distinguish them from each other is by means of their reaction with a solution of titanous chloride (2 to 4 per cent.) and a solution of bleaching powder (5° Tw.) with a few drops of acetic acid. The reactions are as follows:

Dyestuff	Titanous Chloride	Bleaching Powd. sol.
Algoe Red	Brown	Gradually bl'ched to a salmon shade
Ciba Red B	Discolored	Unaffected
Indanthrene Red R	Reddish-brown	Becomes brickier
Helindone Red 3B	Dirty violet	Unaffected
Thioindigo Red B	Nearly discharged	Slowly weakened in shade
Vat Red B	Nearly discharged	Slowly weakened in shade

As to the fastness of indigo compared with other colors dyed upon cotton, it may be stated that indigo is generally accepted as being a type of the fastest colors, and while there are some colors faster than indigo in some particulars, the very great majority of dyestuffs are inferior to it. Berwick.

Cotton importations into Italy for the seven months from January to July, 1908, amounted in value to $42,311,410. For the similar period in 1907 imports were valued at $46,941,518; and for 1906, $37,379,662.

KNITTING DEPARTMENT.

For Knitting Mill Machinery, Equipment and Supplies, see pages 236 to 253. Also Buyers' Index.

KNIT GOODS SITUATION.

Some salesmen report fairly active business on light weights during the past month, but in general the conditions have assumed their usual midsummer quietness. A few local and nearby jobbers have been in the market and notwithstanding the general dullness find no evidence of a weakness in prices. On the contrary the tendency is still upward and all lines are being advanced from 2 1/2 to 5 per cent. Of course the principal reason for the advance is the high raw material prices, but in addition to this, it is felt by sellers that the demand for spring goods for 1910 will be very great.

Stocks in the hands of jobbers and retailers are smaller than for several years past, and the general conditions of the country give promise of good business in the coming year. The few manufacturers who are in a position to take on more business will no doubt have an opportunity to do so later at advanced prices.

One large manufacturing concern which make a very extensive line of children's fleece lined and ribbed goods have issued a circular letter to the jobbing trade advising them that their prices have all been advanced, and that should cotton stay at its present figure, another advance will soon be necessary, and caution their customers against selling short on any of their product.

The Amazon Knitting Co., who make a line of ladies' straight ribbed vests at from 57 1/2 to 95 cents have sold up their season's product without soliciting a new customer, in fact they state that they were obliged to turn down jobbers who called to see their line, who have not been using their goods in former seasons. They have improved their goods by making a heavier fabric and by obtaining a better white in their bleaching operation, and the jobbers who have used their line have all increased their orders considerably for the coming season.

Erstling Bros., who sell the product of the Ardsley Knitting Co. of Long Island, are showing a very large collection of fancy trimmed straight vests that get to the retail trade for 25-cent garments; theirs is a fabric closely imitating the Swiss garment and with copies of hand crochet yokes and oriental lace trimmings makes a very sightly line of popular priced merchandise.

The Achuff Knitting Co. are showing some striking novelties in ladies' ribbed pants for spring which jobbers are buying in a limited way to liven up their lines. They are made umbrella shape with wide colored satin ribbon running through the lace trimming and tied in large bows at the side. These get to the retail trade for 50 and 75-cent garments.

The season just past has shown a tremendous increase in the demand for combination suits for men, women and children, and manufacturers who are in a position to make these goods have increased their capacity. Buyers who have so far placed their orders for spring have been very liberal with orders on all lines from the 25-cent grade upwards.

It seemed as if the limit had almost been reached in getting up a ladies' shaped combination suit at $1.90 with a common cotton lace trimming at the knee, but this season the Reading Underwear Co. have had a suit on the market at this price trimmed with torchon lace. Needless to say this style was sold up very early and withdrawn.

The "Cumfy Cut" line of ladies' ribbed vests proved to be very popular during the last year. Boyce & Son have enlarged their line considerable for the season of 1910. They have arranged with a Western manufacturer of low price straight ribbed vests to make this patented cut, and this will enable

them to show a line at from 75 cents a dozen upwards.

They have also combined the "Cumfy Cut" feature in a combination suit with a patented flap and seat for which greater protection and more perfect covering are claimed than with any other suit.

The Oak Knitting Co. are showing a line of ladies' ribbed vests under the "Ve Lasko" brand, a patented article of some merit. These are constructed with lace shoulder straps inserted between the center and outer edge of the garment, forming a shoulder strap which will not slip down. Added to this feature, there is a double thickness of the cloth forming the lower portion of the arm hole to prevent the soiling of the outer garments by perspiration.

HOSIERY.

The hosiery trade has been almost at a standstill during the past month, owing to the vacation season and the pending tariff bill. As the latter is now settled by the adoption of the Payne bill, the atmosphere ought to be cleared and business resumed on normal basis. The excuse that "we are waiting for the tariff to be settled" can no longer be given and in the face of a strong rising market and the very probable shortage of some classes of fashioned hosiery the situation should contain many reasons for the immediate placing of orders by all buyers, retail and wholesale.

The effect of the tariff legislation upon Chemnitz has been sufficient to create a near-panic and rumors of certain failures among manufacturers are current. Many of them have not as yet paid for the addition to their mills and the installation of new machinery of two or more years ago, and see no prospects of being able to do so.

Nothing definite has been accomplished by them in the way of revising prices and probably will not be before some time in September. The high prices of yarn, it is claimed, will prohibit any radical revision of prices, especially on M4.40 aud M6.60 limits, but it is too early to prophesy with any degree of accuracy.

Cotton yarns are advancing steadily in this country and have gone up 3 to 5 cents per pound (according to quality) since June. In addition to this the spinners, who, it is said, have been running at a loss during the last 18 months, will be able to command higher prices again,—in fact have already raised their prices on the lower grade 3 1/2 to 4 cents per pound, on the higher grade soft yarns 5 cents per pound, and 10 cents per pound on lisle and mercerized yarns.

Manufacturers of domestic full fashioned goods state that no advance will be made on tneir goods on account of the increase in tariff rates, but that an advance is absolutely certain on account of high cotton, which advance would have taken place whether the new bill went through or not. An advance of 2 1/2 to 5 per cent. is frequently met with now on seamless goods of lower grades and still further advances are probable.

Many importing houses have very large stocks of foreign goods on hand and some of them are giving their customers an opportunity to place orders at old prices for delivery in September. We have not heard of any who are willing to book any orders at old prices and carry the stock for delivery in 1910 or the latter part of 1909. Efforts of importing houses to cancel undelivered orders in Chemnitz met with very little success and many will be obliged to pay the new rate on some pretty big blocks of merchandise.

Some of our large fashioned hosiery mills stand ready to double their production if necessary and state further that there need be no shortage of this class of goods. When the heavy stocks of foreign goods now in the country are depleted and it is seen that Germany cannot adjust itself to the new conditions, there will be opportunity enough for them to make good their claims.

In the calendar year 1907 Germany exported cotton yarn to the value of $7,886,566, and cotton goods to the value of $89,015,570, or a total of $96,902,136. In the same year the United States exported $294,012 of cotton yarn, $14,900,421 of cotton cloths, $5,147,748 of other cotton goods, or a total of cotton manufactures of $26,323,062.

EXAMINING AND MENDING HOSIERY.

BY MERRILL.

The most widely used system is to have the work mended by the examiner. However the advisability of using this system depends largely upon the method used in giving out the work and passing it from one department to another. In some mills the work is sent through in single dozens, while in others it is tied up in 5 or 10 dozen lots, having a serial number tag with size and style and operator's number marked plainly and attached to each bundle. The principal advantage in sending the work through in 5 or 10 dozen bundles and of using the serial number tag is that it requires considerable less care to keep account of the work from one department to another. By checking off the numbers as they pass from one department to another and keeping a list of the styles and sizes as they are marked on the tag, the stock-keeper can tell the exact number of dozen, also styles and sizes in any department at any time. By referring to his stock book he can tell in which department any special order he may be rushing through may be found. It also requires less help to give out and take up the work in 5 or 10 dozen bundles.

Where this system of keeping track of the work is used it has been found advisable to have the work inspected and mended separately, owing to the fact that in any large mill it is a very difficult matter to keep all the reduction of the different departments on an even basis. For instance, a mill may be knitting 2,000 dozen per day. Looping 2,000 dozen per day. If only 1,800 dozen per day are being mended there must be 200 dozen each day piling up in the mending room. The finishing department may have a capacity of 2,000 dozen per day, but the mill cannot turn out over 1,800 dozen on account of the mending room's running 200 dozen per day short. Out of this 200 dozen, which is constantly piling up in mending department, it is safe to say there is 180 dozen of perfect work, while only 20 dozen will require mending. It would seem unbusinesslike to let these 20 dozen hold back the other 180 dozen when the finishing department needs the work and orders are also being held up owing to the fact that the work can't be pushed through the mending department. It has also been found that once behind in the mending department it is a very hard matter to get evened up again without shutting down part of the knitting department and reducing the production. The reason for this is that it requires so much time for new help to learn to mend properly. In such cases I have found it advisable to use the new girls to inspect only.

The inspectors can separate the good work from the defective work and allow the perfect work to pass on through the mill, while the defective work is sent to the mending room. The advantage of this is that the experienced mender being relieved of the inspecting can mend considerable more work than she could if required to inspect and mend both. A new girl can inspect almost as much work as an experienced mender. The work will also be mended much better by keeping the experienced help than it would if the new girls were used for mending. There is also the advantage of having all the perfect work finished up, while only about 10 per cent. has to pass through the mending department. I have found that by the use of this system I can operate the mending and inspecting department with considerably less help, also get better work, and never have the inspecting department behind. In case the mending department requires more help, I draw from the inspecting room, as I find the girls who have been inspecting for some time learn to mend much more readily than a new girl. In turn I fill the inspector's places with new girls.

The mending department as a general rule is one which is more neglected than any other department. Most superintendents make it a custom to fill up this department with ignorant foreigners who cannot be used in the other departments. This is a great mistake. In most cases fully 75 per cent. of the mended work has to be sold as seconds. This is unnecessary and an evil which should

be corrected. In most cases the prices paid for mending are so low it is impossible to keep a good class of help on this work and it becomes necessary to use poor help with the result the mill gets poor work or just what is paid for. The mending department is one of the most important departments in the hosiery mill, and in most mills there is a handsome profit thrown away each year owing to the fact that a large amount of goods are thrown into seconds which otherwise might have been perfect if properly mended. The help in this department should be the brightest and neatest that it is possible to secure. And the prices should be such as to make it the most attractive department in the mill. In this way the best results possible will be obtained.

Another system of inspecting and mending, which has proven very successful and which many of the leading manufacturers are adopting is to have each department have an inspecting and mending department of its own. On first thought would say that this would require handling the goods too many times and also require extra help. However such is not the case and the plan has many advantages. When the work is knit there is sure to be a certain amount which will require mending. However before the goods get to the mending room they must pass through the looping department and also be turned before they are inspected. Much of the defective work is made worse by the rough handling it receives in turning and looping. By the time it arrives at the mending department it is so bad that it must be thrown into waste. If this work had been mended in the knitting department it would have been perfect. In a system of this kind the menders in the knitting department mend all defective work before it passes to the looping department. Hence after passing through the looping department the only defective work will be in the looping, consequently the menders in the looping room will have to mend only the defective looping, and it will require comparatively few menders in this department. The principal advantage in this system is that it reduces the waste and seconds. While it may require a little extra help, the difference in seconds and waste will be found to make up for the extra expense. This plan has proven very successful and in no place is the old adage, a stitch in time saves nine, applied more forcibly than in this case.

Waste on Ribbed Hosiery.

Editor Textile World Record:

Please let me know what amount of waste is figured per dozen of fine gauge ribbed hosiery, made of 18s carded peeler yarn. The ribbers are running without stop motions. Also how many needles are generally used per day on the same stockings. Orleans (1112).

The amount of waste will depend very largely upon conditions. For example, some manufacturers run the yarn direct from the cone, while others backwind all their cones. In order to keep the waste down to the lowest possible amount, the yarn should be rewound, and the best grade of mule spun yarn used. If the machines are in good repair and operated by experienced operators, the waste from the ribbers should not run over 2 ounces to the dozen, while the waste from the transfer machines will run about the same. The menders in this class of work will average about 10 per cent.

The needle breakage on the ribbers should not be over 1 needle to every 5 dozen of ribbed tops. The needle breakage on the transfer machines should not be over 1 needle to 4 ounces of work. However, in mills buying their yarns in small quantities and from different companies the waste and menders are liable to be more than this. In our mill we are making this grade of work and are running the yarn direct from the cones, and by actual test of 30 days' run on 24 machines, we find our waste to average 4 ounces per dozen, while the menders average about 10 per cent. On our transfer machines our waste, including ravelings, averages 2 ounces per day, while the loopers' waste amounts to 1 ounce per dozen. This makes the total waste on this class of goods 7 ounces per dozen, and our menders 10 per cent. or about 3 ounces per dozen. We have

also found that the greater portion of the waste from the ribbers is caused by poor winding. This will cause numerous press-offs and bad needles. We have been able to greatly reduce the waste by back winding our yarn, which we do whenever possible. Where the yarn is rewound the use of stop motions is unnecessary, but in mills not having the capacity to rewind the yarn, I would advise the use of stop-motions as one of the best ways of reducing the waste. They reduce the number of press-offs, and preserve the needles, which are the two principal causes of waste from ribbers. Merrill.

The most important imports of cotton textiles into Italy from January to July, 1908, were laces, the unfinished amounting to 4,019,360 lbs. and other laces to 17,736,180 lbs.

WEB HOLDER FOR RIB KNITTING MACHINES.

An improved web holder, recently patented in this country, is described by the inventor as follows:

The object of my invention is to provide a rib knitting machine with web holders of such character that the "knocking over" of the stitches on the ribbing needles can be effected without the use of weights, draft rolls or the like, for imparting tension to the knitted web.

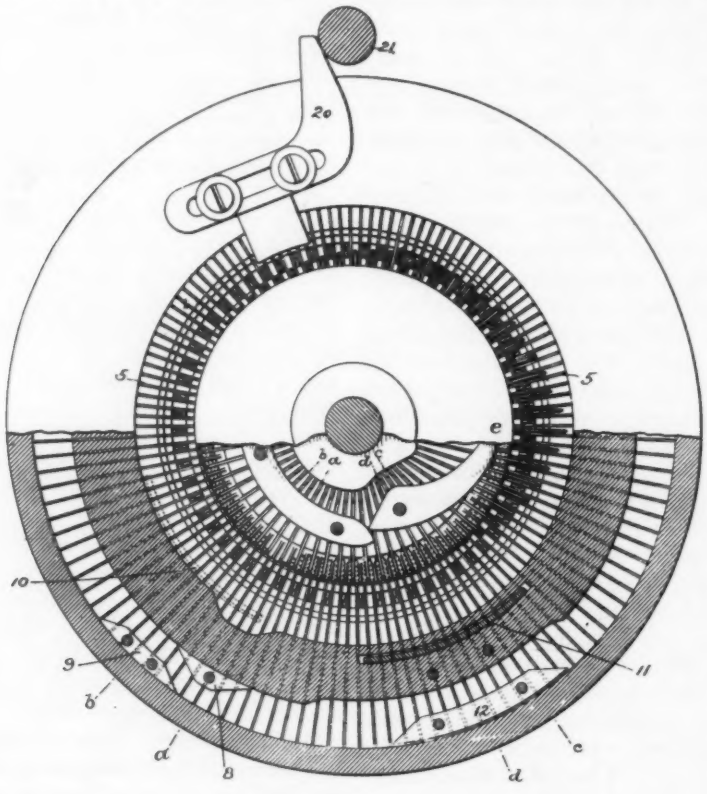


FIG. 1.

Fig. 1 is a view, partly in plan and partly in sectional plan, of part of a circular knitting machine provided with the new web holder; Figs. 2, 3, 4 and 5 are transverse sections, respectively, on the lines a—a, b—b, c—c, and d—d, Fig. 1.

In Figs. 1 to 5 of the drawing, 1 and 2 rep-

resent parts of two needle carriers; 3 and 4, needles guided therein. The needle carriers may be the cylinder and dial of an ordinary circular rib-knitting machine, the needles may, for knitting purposes, be projected and

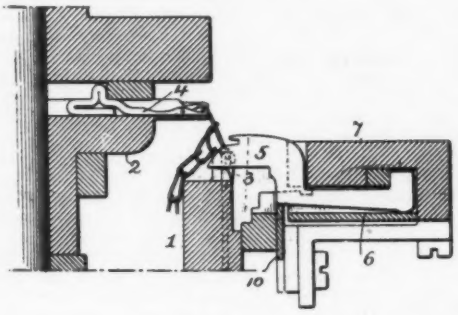


FIG. 2.

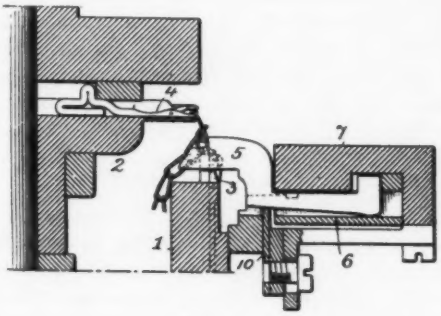


FIG. 3.

retracted in the cylinder and dial by cams of the usual character, in the cylinder cam ring and dial cam plate, and the machine may have a rotating needle cylinder and dial and a stationary cylinder cam ring and dial cam

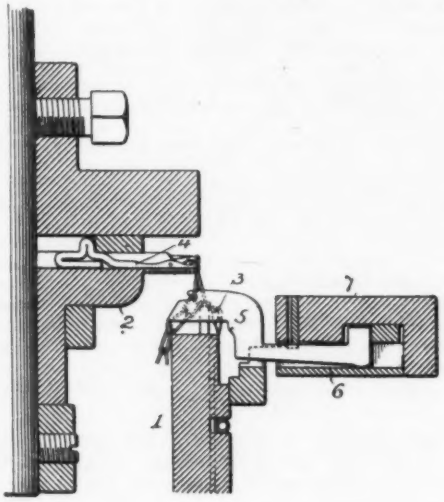


FIG. 4.

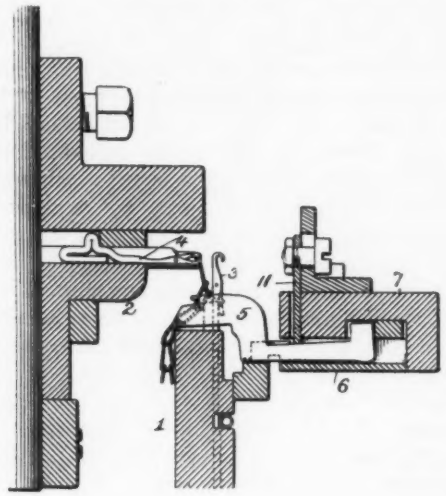


FIG. 5.

plate; or a rotating cylinder cam ring and dial cam plate and a stationary cylinder and dial; a machine of the latter type being in the present instance adopted for illustrating the web holder. The object is to provide the knitting machine with web holders capable of "knocking over" the stitches upon the dial or ribbing needles, and thereby dispensing with the use of weights, draft rolls, or like devices for imparting tension to the knitted web.

The combined sinkers and web holders, 5, are of the usual character, and are guided in radial grooves in an annular bed, 6, surrounding the upper portion of the needle cylinder, 1, being radially reciprocated in the grooves by cams in a ring, 7, mounted on the bed, 6.

The cam ring has the usual cam for retracting the web holders and permitting the sinking of the cylinder stitches below the tops of those portions of the web holders

which project beyond the hooks. The cam ring also has the usual projecting cam for advancing the web holders in order that the hooks may engage with the stitches and prevent the rising of the web with the cylinder needles when the latter are again projected. As such movement of the web holders does not impart any tension to the rib stitches it is customary in ordinary rib knitting machines, to use weights or draft mechanism for imparting tension to the knitted web in order to effect the knocking over of the rib stitches.

These weights or draft mechanism are made unnecessary by imparting to the web holders a rising-and-falling movement in addition to the radial movement, this rising-and-falling movement being effected by means of cams.

In Fig. 1, the line, a—a, represents the point at which the web holders, after having been retracted by the cam, 8, are raised by the cam, 10, as shown in Fig. 2; the line, b—b, represents the point at which, after having been thus raised the web holders have been projected, as shown in Fig. 3, so that they will engage the sinker wales of the ribbed web. At the line, c—c, the web holders are projected to a still further extent by the action of the cam, 12, as shown in Fig. 4, and at the line, d—d, the web holders, while thus projected and in engagement with the sinker wales of the web, are depressed by the cam, 11, so as to impart the desired tension to the sinker wales, and cause knocking over of the stitches upon the dial needles, the latter having previously been projected to receive, at the clearing point, e, the fresh yarn, preparatory to being retracted at the knocking over point, d, so as to draw the stitches of the new course through the stitches hanging from the needles and which now constitute the preceding course of the knitting.

Italy's cotton exportations for the seven months from January to July, 1908, amounted in value to $11,798,253. For the similar period in 1907 exports were valued at $16,103,067; and for 1906, $13,695,564.

KNITTING MILL NEWS.

New Mills.

California, San Francisco. The Acme Knitting Co., a new concern, will manufacture high grade underwear and sweater coats on Grosser machines. The capacity at first will be six dozen garments per day, but by January 1 they expect to increase to 14 dozen per day. Wm. Isenberg, formerly of the Phoenix Knitting Works, Milwaukee, Wis., and of the Saxony Knit Goods Co., Seattle, Wash., is superintendent. Their office and salesroom is at 115 Natoma St.

Massachusetts, North Adams. E. A. Richardson of this place is interested in the Berkshire Hosiery Co., which has been recently incorporated for the purpose of manufacturing hosiery. It is expected to have the plant in operation by the middle of September with equipment of 12 knitters, 4 ribbers and 4 loopers, together with the necessary dyeing and finishing machinery. Charles Pittle of New Bedford will be superintendent. Electric power will be used.

*Massachusetts, Swampscott. The Wilman Knitting Co. has been organized and has equipped a plant on the Pitman estate on Cherry St. Gilbert L. Pitman is at the head of this enterprise. Men's hosiery is being manufactured.

*Missouri, Kansas City. Equipment for the Goodenow-Brookfield Knitting Co., recently incorporated with capital stock of $10,000 to manufacture men's and women's knit goods, has not been purchased. They are interested in flat knitting machines. A. D. Brookfield is treasurer and buyer, and R. Miller, superintendent.

*North Carolina, Mt. Pleasant. The James Knitting Mill has started running full time, although the full complement of machinery has not yet been placed. The produce will be known under the name of "The James Boys Twins."

*North Carolina, Raleigh. The Capital Hosiery Mills are now operating 19 knitting machines, 5 ribbers and 4 loopers on knit goods, 176 needle half hose. C. M. Benard is president and treasurer, and J. A. Matthews, superintendent and buyer. The plant is run by electricity. This is the mill formerly known as the Matthews Hosiery Co.

Pennsylvania, Allentown. A new knitting mill, 3 stories high, 26 by 56 ft., will be built at the corner of Court and Fountain Sts. for Walter J. Grim.

Pennsylvania, Philadelphia. Samuel W. Winslow, located at 712 Walnut St., together with John R. Farrell and John C. Templin, as incorporators, have applied for a charter for the Arion Knitting Company. It is impossible to state where the company will locate or what class of goods they will make until they receive their charter, which will be in about six weeks.

New York, Philmont. An addition, 30 by 40 ft., has been built by the Columbia Mesh Knitting Co. for a washing and drying room. This concern will also add 10 new sewing machines, giving them production of 200 dozen per day.

*New York, Utica. The stockholders of the Augusta Knitting Co. acted favorably on the resolution to increase the capital stock from $75,000 to $150,000.

*New York, Warsaw. Work is nearly completed on the new addition for the Brown Knitting Co.

Ohio, Bowling Green. The Monarch Underwear Co. will install a number of new knitting machines, and contemplate the erection of another story to their plant. They plan to increase the capacity about 35 per cent.

*Ohio, Bowling Green. A 2-story addition, 34 by 200 ft., will be erected next January for the Monarch Underwear Co., manufacturers of men's union suits. Ten new spring needle knitting machines and 10 sewing machines will be added to the equipment. R. J. Eberly is president and treasurer, and R. D. Roper is superintendent and buyer.

Pennsylvania, Allensville. The Allensville Hosiery Mills, H. L. Hubbs and J. T. Zerby, proprietors, are removing their plant to a 2-story frame building 60 by 30 ft. The new location is but a short distance from the old mill.

Pennsylvania, Brownstown. The Conestoga Hosiery Co. has recently had a 68 h. p. boiler and a 40 h. p. engine installed in their new building.

*Pennsylvania, Norristown. Work is well under way on the new plant for the Ballard Knitting Mills. This building, which is to be 6 stories high, will have a concrete foundation.

*Pennsylvania, Reading. The total equipment of the Continental Hosiery Mills will be 70 knitting machines and five sewing machines when the new equipment, now being installed, is in place for manufacturing. They make ladies' hosiery, buying 16s, 18s, 20s and 2/40s combed Egyptian, mercerized, and 2/40s plain cotton yarn. A report was given recently of the incorporation of this company.

*Pennsylvania, Wyomissing. The new addition to be built to the knitting plant of H. D. Leinbach will be 25 by 30 ft., concrete, 2 stories, and will be used for the present to relieve the congested condition of the main building only.

Rhode Island, Thornton. Six new knitting machines are being installed in the British Hosiery Co.

Tennessee, Loudon. A brick addition will be built for the Loudon Hosiery Mills, and new machinery installed. At present 105 latch needle knitting machines are operated on women's seamless and children's and infants' cotton hosiery.

Tennessee, Nashville. The National Hosiery & Yarn Co. is overhauling some of its machinery, which has been idle for several months, with a view to putting it in operation within a few weeks. It is reported that they contemplate the erection of an additional building to be used as a knitting room.

Tennessee, Rockwood. Additions at the Rockwood Mills are nearly completed. They will convert the present finishing room and boarding room into a knitting room, moving the finishing and boarding departments into the new building. Rough mending also will be done in the new building. They will have 100 footers, 170 ribbers, and 35 to 40 loopers. The new boiler and engine, previously reported to be added, will be installed late in the fall.

Vermont, Northfield. A new 80 h. p. boiler has been installed in the Vermont Hosiery & Machinery Co., which will be used for both power and heating.

Virginia, Lynchburg. An addition will be built by the Lynchburg Hosiery Mills, Inc., and new equipment installed. Some reports state that the present capacity is to be doubled. They are operating 105 latch needle knitting machines on cotton and wool men's half hose.

Washington, Olympia. The Washington Knitting Mills, Inc., of Seattle, have been reorganized under the name of the Olympia Knitting Mills, Inc., and have removed their plant to Olympia, preparatory to increasing the equipment. All kinds of knit goods novelties are manufactured from 2/15s, 2/16s, 3/20s, 3/21s, 4/15s and 3/15s worsted and 2/24s, 2/28s and 2/30s mercerized. The capital stock of the company is $10,000. George E. Filley is president; T. H. Phipps, treasurer and Sol Meyers, superintendent and buyer. The product is sold direct.

West Virginia, Fairmont. The capital stock of the Knox Sox Co. has been increased from $5,000 to $10,000, and the plant will be enlarged as a result.

Wisconsin, Two Rivers. The Zulu Knitting Co. is making improvements to their plant.

Personals.

S. S. Parker, superintendent for the Oswego Knitting Co., Oswego, N. Y., has severed his connection with that company.

John S. Efird has accepted the position as superintendent of the Lilian Knitting Mills Co., Albemarle, N. C., succeeding R. A. Crowell.

George F. Tripp has been appointed overseer of the weaving department of the Bourne Mills, Fall River, Mass., succeeding Louis Dubois.

George H. Jepson has been appointed superintendent of the Tippecanoe Underwear Co., Tippecanoe, O. He was formerly employed at Schenectady, N. Y.

Edwin T. Knowlton who has been assistant pay manager at the Armory Mills, Manchester, N. H., has been appointed assistant superintendent of the Elliott Manufacturing Company same city.

New Machinery and Processes.

This department is designed to present from month to month a brief mention of new machinery, devices and processes being brought out in this country and abroad, that are of interest to textile manufacturers. It is not a list of patents, but of improvements coming on the market. The idea being to present to our readers a systematic monthly record of new machinery etc., of interest to textile mill men.
We invite machine builders and others to send us such information for this department.

London Shrunk Process. The Hydraulic Press Mfg. Co., Mount Gilead, O., are introducing a cold water process of shrinking cloth which is described in another part of this issue.

Continuous Crabber. The Arlington Machine Works, Arlington Heights, Mass. A continuous crabber which is described in this issue.

Loom for Woolens and Worsteds. The Lombard Machine Co., Worcester, Mass., are placing on the market a new woolen and worsted loom to be known as the Lombard-Landry loom. A description will be found in another part of this issue.

Hygrometer. Walter Jamieson, Glasgow, Scotland. An improved direct reading hygrometer. By setting the pointers at the wet and dry bulbs temperatures the humidity of the air is indicated on a scale.

Doffing Motion. F. Lister, 28 Cobden St., Bradford, England. An automatic doffing motion for flier frames which is in use in Bradford, England and is said to be giving excellent satisfaction.

Grinding Motion for Calender Rolls. Dronsfield Bros., Atlas Works, Oldham, England. An improved grinding motion for calender rolls. It is of extra heavy construction in order to ensure durability and accurate results.

Warp Moistener. The British Humidifier Co., Blackburn, England. A moistening device which is attached to the frame of the loom and deposits a fine spray on the warp. It is claimed that this method is superior to "steaming," as the moisture is applied to only such warps as need it and in the quantity required.

Hair Cloth Loom. Emil Seidel, Olbernhau-Gruenthal, Germany. An improved loom for weaving horse-hair cloth which is adapted for weaving cloth made from both natural and artificial hair.

Air Moistener. Freidr. Hass, Lennep, Germany. A system of air moistening invented by Lambert Bros. which is based on the principle of the atomizer, distributing the moisture in the form of a fine spray.

Stripping Brush for Combers. Bennett & Reynard, Ltd., Milkstone Rd., Rochdale, England. A stripping brush for cleaning the top comb of cotton combers. It obviates the need of cleaning the comb by hand, saves time and removes the danger of injury to the operative.

Jacquard Weaving. Julius Mayer, Freudenthal, Germany. A machine for reproducing jacquard patterns on design paper.

Corduroy Cutting Machine. A. W. Buhlmann, 487 Broadway, N. Y., is the American agent for the Mueller corduroy cutting machine, which is described in another part of this issue.

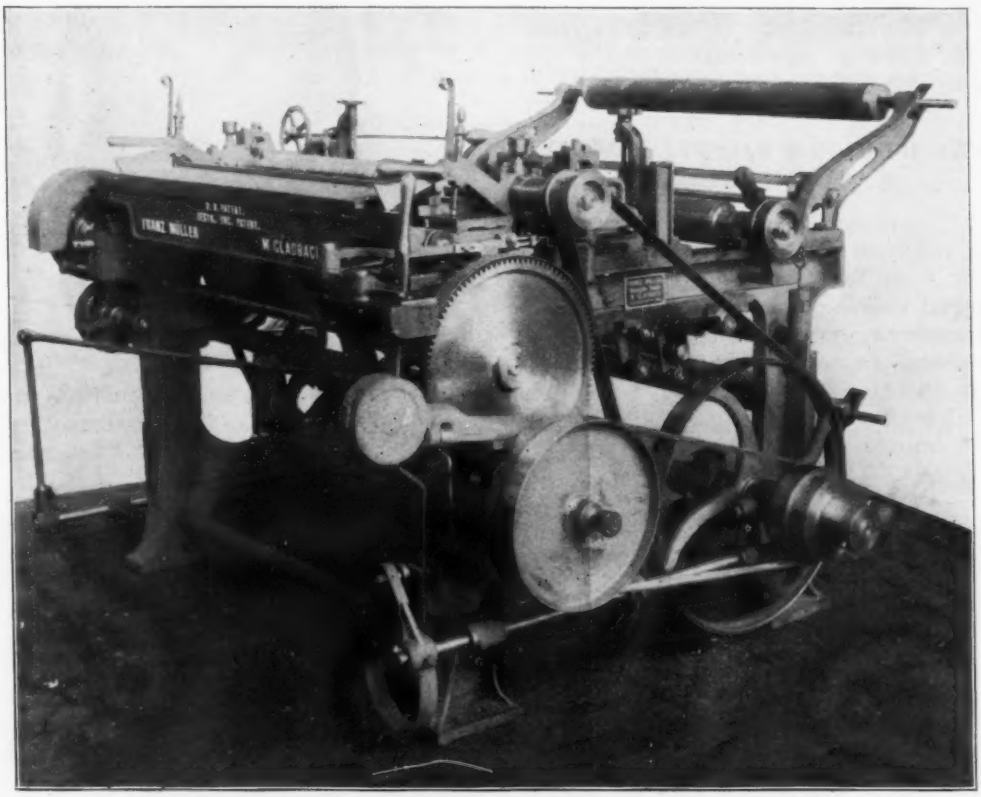
Gas Lighting. Herbert Tuchman Mfg. Co., London, England. An apparatus for lighting gas in mills. It consists of a battery, transformer, trembler and spark leads. The 4 or 6 volt current generated by the battery is altered by means of the trembler to a current which can be transformed to high tension in the transformer, which is placed near the burner, and which when connected to the spark leads on the burner, produces a hot spark. No naked lights and no lighting with matches or the like is employed, the fire risks, therefore, being materially reduced.

THE MUELLER CORDUROY CUTTING MACHINE.

The accompanying illustration shows the latest machine for cutting corduroys. The cloth passes over the various bars and rollers that are provided with variable tension over an angular table, which consists of three wings with various angular edges or borders adapted to the different qualities of corduroy. On a table is a stretching roller with ratchet and spring to keep the cloth under tension. Behind the table is an automatic stop motion underneath the cloth which stops the machine in case the needle guiding the knives breaks through the loop. On top of the table is the shaft bearing the knives, which are guided by a needle split like a fork to open the loop. The movement of the shaft bearing the knives is independent of the movement of the cloth. The shaft reaches the necessary speed before the cloth starts. The speed of the cloth is variable and can easily be changed.

In case the needle breaks through the loop, the cloth stops first while the knife-shaft is still running. There is a special brake attachment to obtain an immediate stopping. Both attachments for stopping the cloth and the shaft are in direct connection. The brake is movable in all directions to allow the cutting of cloth in stripes.

All the loops in the entire width of 30 inches, whether they are wide or not, are cut in one operation. The knives adapt



THE MUELLER CORDUROY CUTTING MACHINE.

themselves to the density of the loop, and the quality of the goods. The Mueller machine produces from 300 to 700 yards in 10 hours and no sizing or soaping is necessary. The features of the machine are its adaptability to narrow or wide cords and light and heavy qualities, its large production, easy handling and superior workmanship, for which the Mueller firm has a prestige. Further information may be had by applying to the American representative, A. W. Buhlman, 487 Broadway, New York.

THE JOHNSON & BASSETT NEW METAL BOBBIN WINDER.

This yarn winding machine, shown in Fig. 1, and built by Johnson & Bassett, Worcester, Mass., is offered to the trade as the only metal winder on the market. Its scope is transferring yarn from spools on to either bobbins or cops, or from bobbins on to bobbins or cops, or from cops on to bobbins or cops. The machine is entirely automatic, the attendant being required only to doff the sets, replace spools, and piece broken ends. An absolutely uniform and perfect bobbin is produced. Fig. 2 shows photographs of two bobbins and cop wound on this winder. The builders guarantee a larger production from this winder than can be obtained from any

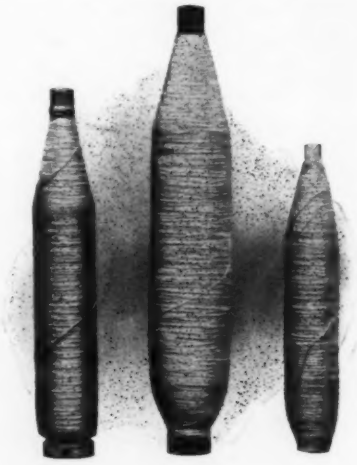


FIG. 2.

competing machine, and if a mill has much of any winding, one of these winders will pay for itself in a very short time. One special feature worthy of particular mention is economy in floor space. The new metal winder takes up 18 inches less width space than the ordinary common winder. The machine is

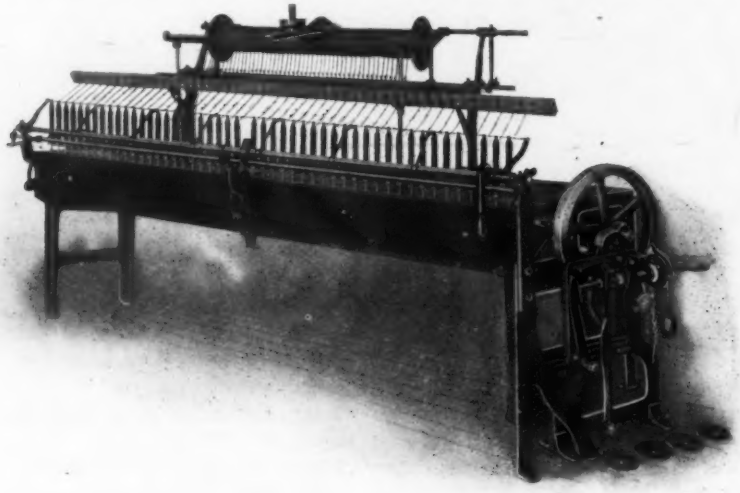


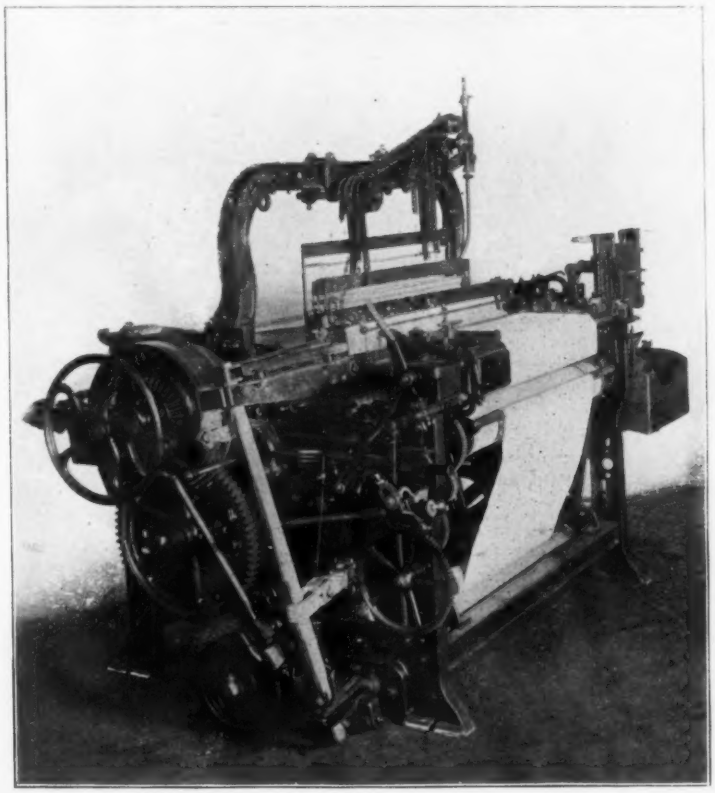
FIG. 1

complete with patent automatic builder, patent spindle band tension regulators, patent bobbin holders, and secondary intermediate porcelain guide rail. It is made with any number of spindles desired. Further information can be obtained upon application to the builders.

THE "IDEAL" AUTOMATIC LOOM.

The "Ideal" automatic loom built by the Stafford Company, Readville, Mass., impresses the observer at once because of the extremely simple and practical way in which the principles embodied in the loom have been worked out. Instead of devising an entirely new scheme for keeping the loom supplied with filling, the human operator has been taken as a model, and the loom designed to perform mechanically almost identically the same operations that the weaver does by hand.

The main difference between this loom and a plain loom in so far as principles are concerned, is that the latter uses two shuttles per loom, whereas the former will use as many as ten or eleven. In a plain loom the extra shuttle is kept in a holder convenient to the weaver, so that when the loom stops, after the yarn has run out, he can put a fresh shuttle in the loom and start it up again with the least possible waste of time. With the "Ideal" automatic loom the reserve supply of shuttles is kept in a magazine attached to the breast beam; sometimes no more than six shuttles are used, and it is seldom that more than nine are found to be needed. The loom stops when the absence of yarn is denoted by the filling fork, the

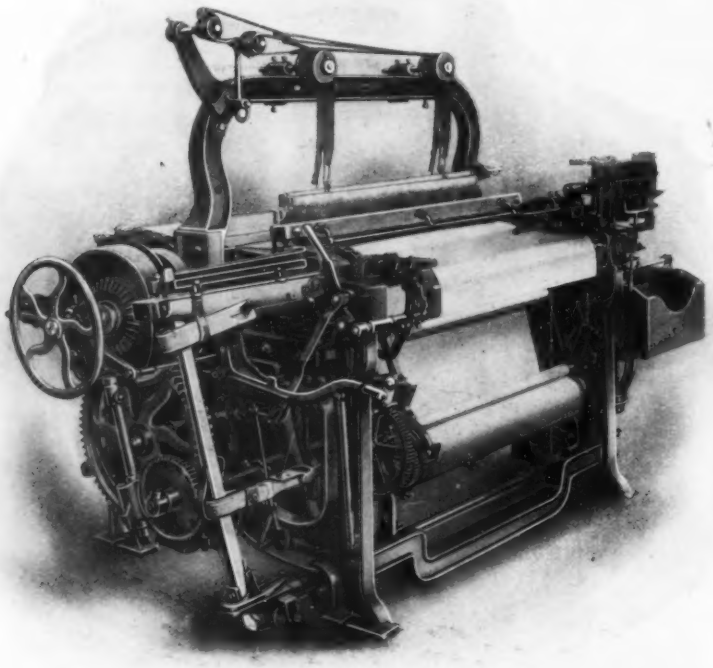


A PILLOW-TUBING LOOM.

empty shuttle is ejected into a receiver box, being guided by a leather apron, and its fall checked by a trap, so that it drops gently into its receptacle, and a new shuttle is carried forward from the magazine and placed in the shuttle box. The loom then starts weaving in the ordinary way and the automatic mechanism remains out of action until it becomes necessary to replenish the filling again.

The loom, however, is to all intents and purposes, in so far as weaving is concerned, a plain loom. No new and unusual problems in weaving are introduced by reason of the automatic shuttle changing mechanism. Plenty of time is taken to change the shuttle. There are no hurried or violent mechanical movements, but the whole series from the time the filling fork indicates the absence of yarn, until the time the shipper handle is thrown on again and the loom restarts weaving, are performed as carefully and with as much precision as though the same operations were performed by an experienced weaver.

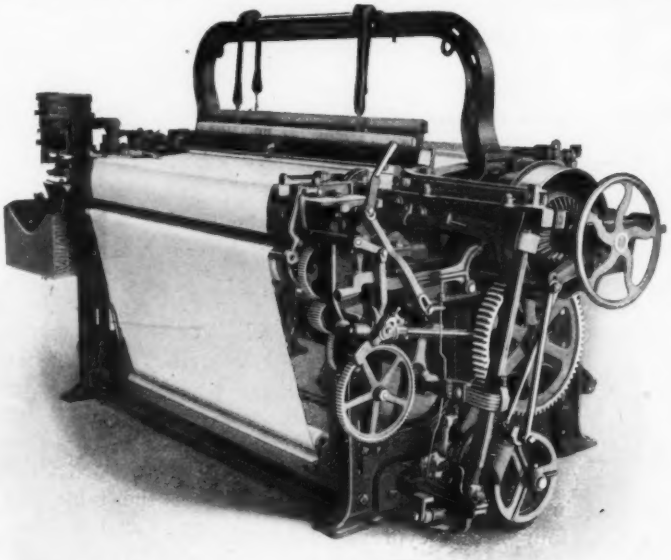
A very wide range of goods can be made on this loom and in fact embraces almost all fabrics that can be made on a plain cotton loom using either cop or bobbin filling. It has been used with success on certain lines of coarse cotton and woolen mixed fabrics, and it would seem that the possibilities for extension along these lines are very great.



THREE-HARNESS LOOM WITH PICK-FINDER.

An extremely interesting and valuable device used in connection with the "Ideal" automatic loom for making 3, 4 and 5 harness goods is the pick finder motion, which enables goods of this kind to be made without using a feeler motion and its attendant waste and expense. The loss from waste

yarn and the expense of stripping the bobbins in mills where such goods as 3 harness drills are made with a feeler motion frequently will run as high as $10 a loom per annum. With the "Ideal" loom this is practically all saved, for the waste is negligible and there are no bobbins to strip. The builders inform us that "Ideal" looms are being run on drills, denims, sateens, tick-



PLAIN GOODS LOOM.

ings, shirtings and other lines with excellent results, and mills using them are obtaining a better class of goods than ever before, either on plain looms or automatic looms of any other type.

For making pillow tubing the loom is equipped with a special harness rigging, and gives most excellent results, producing a very perfect fabric. The cams are placed on the inside of the loom on a jack shaft driven by a gear from the bottom shaft, and a patented head motion is used to compensate for the heavy lift.

Owing to the excellent construction of the loom and the time feature of the shuttle changing motion, the repair bills are unusually light, and, it is stated, under ordinary circumstances do not exceed what would be required on an ordinary amount on a plain loom. The builders inform us that one well known mill, running a large number of these looms, reports that the repair bills have averaged 25 per cent. less than on their plain looms. Another mill reports during a test run of four weeks, an average of 35 cents per loom per annum, and in no case have the repairs been unduly high, or the cost of supplies excessive. There are no broken bobbins and the shuttles, while costing more per loom in the first place on account of the extra number required, will average no higher eventually than on plain looms.

Some striking economies have been reported to the builders by those operating the "Ideal" looms. In the case of a recent installation the mill operating the looms figured a saving of 60 per cent. on their weaving cost. In another case where the looms were run on 56 by 60, 4-yard sheetings, the costs were reduced from 22 cents a cut to 8 1/2 cents. In another mill running 64 by 64, 39-inch goods, the cost was reduced from 29 1/2 cents to 13 cents per cut. A reduc-

tion from 17 cents on plain looms to 7 cents on the "Ideal" is the experience of another mill running these looms on 36-inch goods 44 by 40.

These are typical examples of the saving reported by mills equipped with the "Ideal" automatic loom. From 24 to 26 looms per weaver is ordinary practice. In the case of a recent installation, within two weeks after the looms were started up a weaver was operating 34 looms and obtaining 95 per cent. production.

A number of "Ideal" looms are running on different classes of goods at the works of the Stafford Company, Readville, Mass., where they can be seen at any time by those interested. The builders will also be pleased to give any further information desired and refer manufacturers to mills in which the loom is installed.

THE ARLINGTON CRABBER.

The continuous crabbing machine shown in the accompanying illustration, built by the Arlington Machine Works, Arlington Heights, Mass., embodies many features that the long experience of these builders has proved to be desirable in this class of machines. It consists of four heavy cypress tanks, well bolted and jointed to prevent leakage. Each tank is fitted with five brass rollers set in patent bearings that do not require lubrication. Each tank has a brass socket and plug by which to draw off the liquor and the first three tanks are equipped with perforated steam pipes for hot water. The cloth passes over the rails resting on brackets at the feed end of the machine. Between each tank are placed heavy iron rolls on which the pressure is obtained by rubber springs adjusted by hand wheels. Each top roll can be lifted clear of the bottom roll if desired. A pair of adjustable spiral brass spreading rolls is placed in front of each pair of squeeze rolls. These spreader rolls smooth out all wrinkles and creases and curled selvages and deliver the cloth in perfect condition to the squeeze rollers. The spreading rolls are adjustable so as to suit the spreading action to the requirements of the cloth being treated. This is quite an advantage, as rigid spreading rolls spread some goods too much and others not enough.

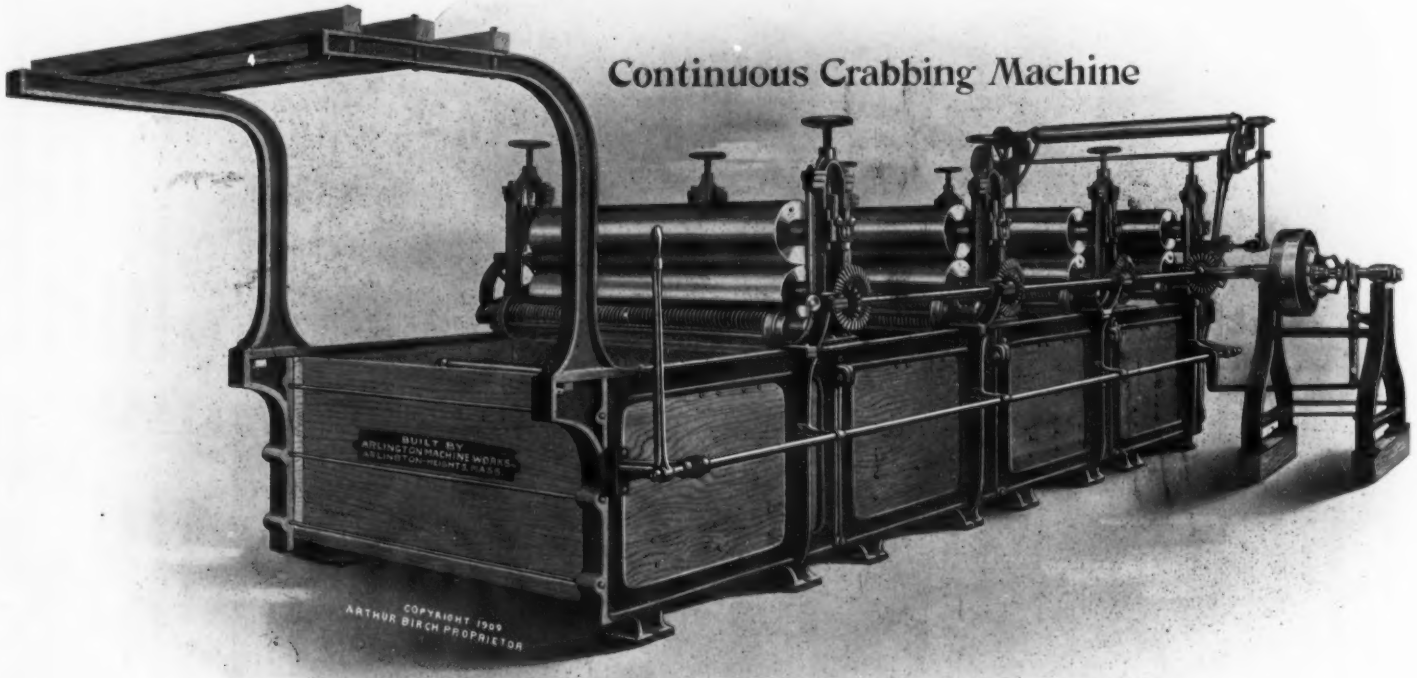
The cloth usually enters fairly warm water in the first tank and goes over and under all the brass rolls, then between the adjustable spiral rolls and through the heavy iron squeeze rolls, then over and under all the rolls in the second tank where the liquor is brought to a higher temperature, and then into the third tank where the water is brought to the boiling point. The cloth then enters the fourth and last tank, where it comes into contact with cold water and is then carried through the folder onto trucks.

The folder is driven positively by a sprocket chain. The lower swinging rolls are placed side by side, not one on top of the other, so that no pressure is brought to bear on the goods except what is required. The machine is driven by a friction pulley, 24-inch diameter, 6-inch face, and with a shaft geared to the squeeze rolls with a ratio of 4 to 1, making a very effective drive, which is an important factor in the success of the machine. The position of the driving pulley prevents dirt from being thrown by the belt into the tank and on the goods. Two shippers enable the machine to be started at either end.

The machine has been designed to facilitate handling of the goods and as a result no heavy lifting is necessary. The machine is in successful operation in a number of our best mills, to which reference will be made on application to the builders.

The Philippines imported cotton and manufactures of cotton to the value of $7,216,682 against $9,026,469, a loss in value of $1,809,787.

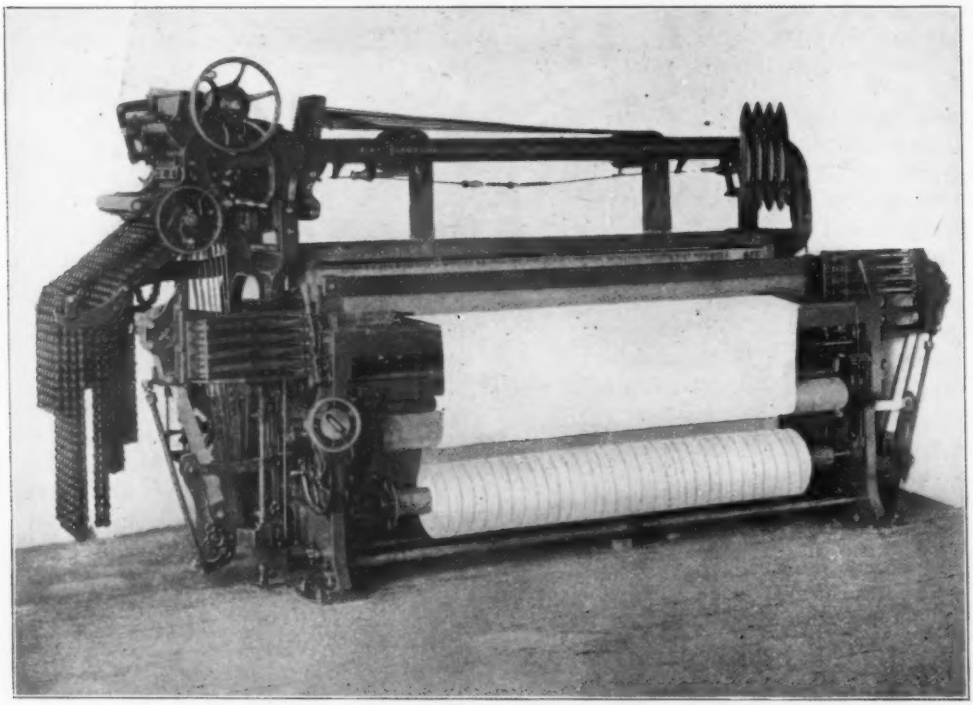
The Norrkoping, Sweden, weavers of high class worsteds are paid $2.10 to $3.25 per thousand picks and the best of them earn $250 a year. The system of wage days is a curious one in that country. The help receive payment every week of a sum sufficient for their daily necessities and the balance due is paid in sums of $20 to $25 every three months. With this money the workers pay the rent.



THE ARLINGTON CRABBING MACHINE.

THE LOMBARD-LANDRY LOOM.

The Lombard Machine Co., Worcester, Mass., are placing on the market a new loom for weaving men's wear woolen and worsted goods, and which is shown in the accompanying illustration. This loom was invented by Louis H. Landry and has been designed by W. S. Southwick, late of the Draper Manufacturing Company, Hopedale. Patents have been allowed on all the essential parts of the machine, and the makers are preparing to put the looms on the market at once.



THE LOMBARD-LANDRY LOOM.

The Lombard-Landry loom has been designed to run at 15 to 20 per cent. higher speed than other looms of the same class. This necessitates a more substantial construction of the parts where an increase of vibration or strain might be produced. While the builders feel that the loom's capacity for increased production is the most important feature from the manufacturer's point of view, the simplicity of the working parts, and the easy access to them will be greatly appreciated by the loom fixers, and reduce materially the cost of repair parts.

The loom is of the closed shed type, and is operated by a new harness motion. The harness are opened by means of a pair of oscillating blades driven from the head shaft, the upper blade raising the harnesses and the lower one dropping them. The harness are evened up by a rocker arangement, which is governed by an eccentric on the above-mentioned shaft.

The box motion receives its power through eccentric gears from the main head shaft. It has a positive lock, and all the parts can be easily reached for adjustment. The box rod is provided with a releaser which acts automatically whenever the

picker catches in the box, relieving the box-motion parts of extra strain.

The pick motion is arranged outside of the loom frames, where it is easy to adjust, and is driven by a picking ball attached to the crank shaft, the pick coming directly under the crank shaft box, thus securing a firm pick. The usual cam shaft has been discarded, thus allowing room for about 50 per cent. more warp. The weights usually employed to produce friction on the warp beam have been replaced by a spring on a new automatic let-off motion, the tension of the spring being controlled by a feeler which follows the warp.

The main driving clutch is of the friction type, having two metal faces to produce the bite, the advantages over leather-faced clutches being a quicker release and the paces not affected by oil. The main driving gear is so arranged as to be easily removed or reset in any one of three annular positions.

The take-up motion is provided with a pocket for the handle, so designed as to make pumping impossible. A simple provision is also made for letting back a large amount on the cloth roll quickly and with ease. The lay and crank shaft are connected by a strongly constructed and easily adjustable arm. The hand wheel is provided with means of readily obtaining a reduced speed when desired, thus demanding less strength in shifting the harnesses for picking out. The builders state that the introduction of the Lombard-Landry loom will cause no disorganization of the weave room. Although the warp beam on the new loom has a flange great enough for 50 per cent. more yardage capacity than the ordinary loom, the ordinary beam, harnesses and reeds may be used on the Lombard-Landry without any alteration.

The mechanism of the loom is made accessible by placing most of the working parts, which are well protected by guards, outside of the frame. The depreciation account in this type of loom is not so great, it is claimed, as in any of its competitors, owing to its doing away with vibrating gears, and because of the perfect adjustment of all the wearing parts.

The Lombard Machine Company, which has begun the manufacture of these looms, is one of the oldest manufacturing enterprises in worcester, dating back to 1823. Its business for over three-quarters of a century has been making cards and preparing woolen and worsted machinery. There is hardly a woolen mill in this country in which some evidence of its workmanship cannot be found.

THE WALKER WARP MEASURING MACHINE.

Every mill man is acquainted with the difficulty in keeping cuts of uniform length. Part of this difficulty is caused by the weav-

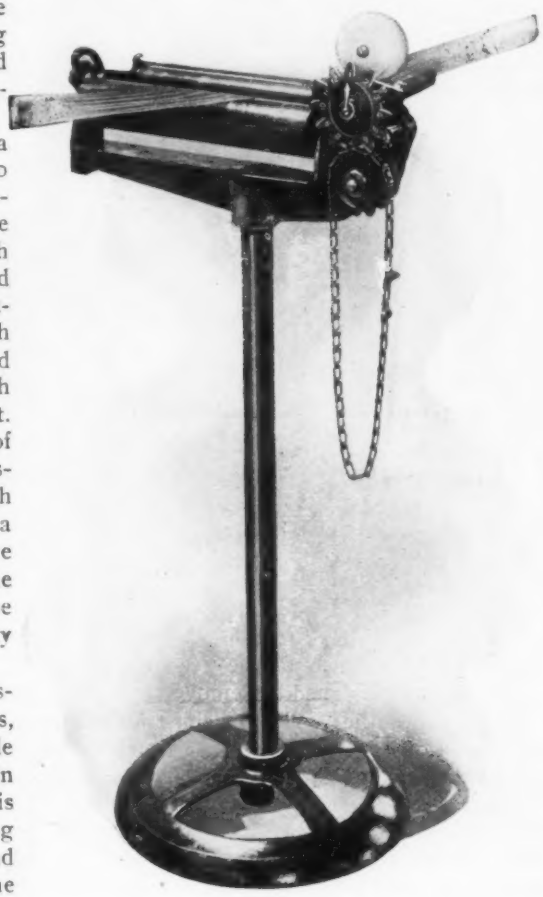


FIG. 1.

ers not taking the cuts off at the place marked on the warp, but the chief cause is the defective marking of the warps, and it is this cause which the measuring machine manufactured by the Walker Measuring Machine Co., 5527 North Third St., Philadelphia, Pa., and shown in the accompanying illustrations is designed to remove.

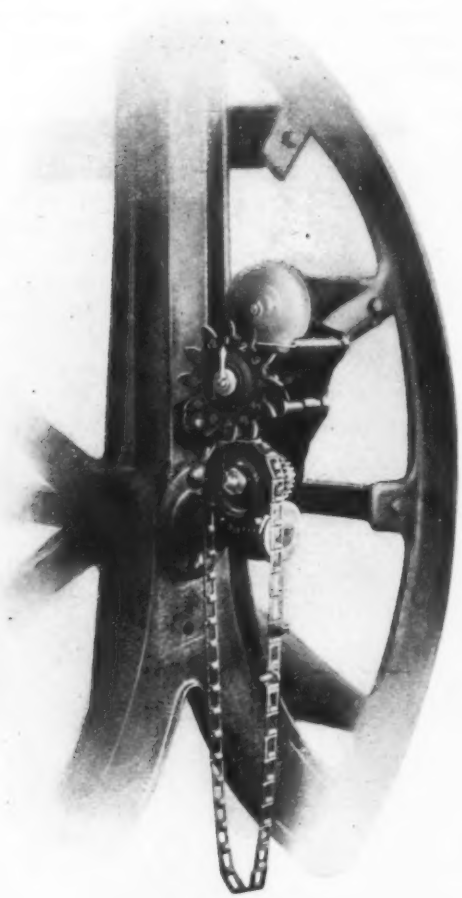


FIG. 2..

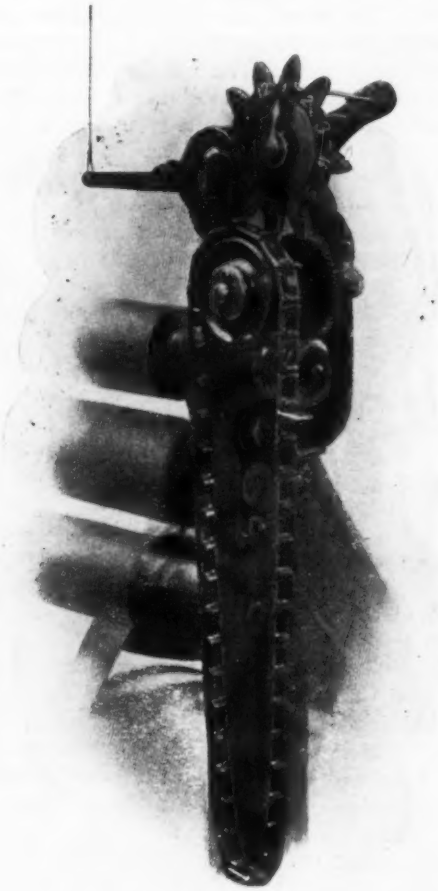


FIG. 3.

Fig. 1 shows the Walker machine measuring a section of a warp. The diameter of the roller is such that each link of the chain represents a delivery of one yard of warp. The number of yards in a cut corresponds with the number of links in the chain. At each revolution of the chain the register wheel is moved one notch, and thus indicates the number of cuts wound on the reel.

The great advantage of this measurer over the old method is the equal subdivision of the warp into cuts of any desired length, which cannot be done by counting the revolutions of the reel, as the reel is constantly increasing in circumference. The yarn must be measured before going on the reel to give cuts of equal length. The measurer stands between the reed and the reel. It is necessary to use the measurer only on the first section on which the cut marks are placed, after which it can be set aside until the first section of the next warp is to be made. One

of these machines can be used to do the work for several section reels, providing two warpers are not making the section on which the cut marks are placed at the same time. The measurer on the end of the reel will indicate the number of rounds in the whole length of warp.

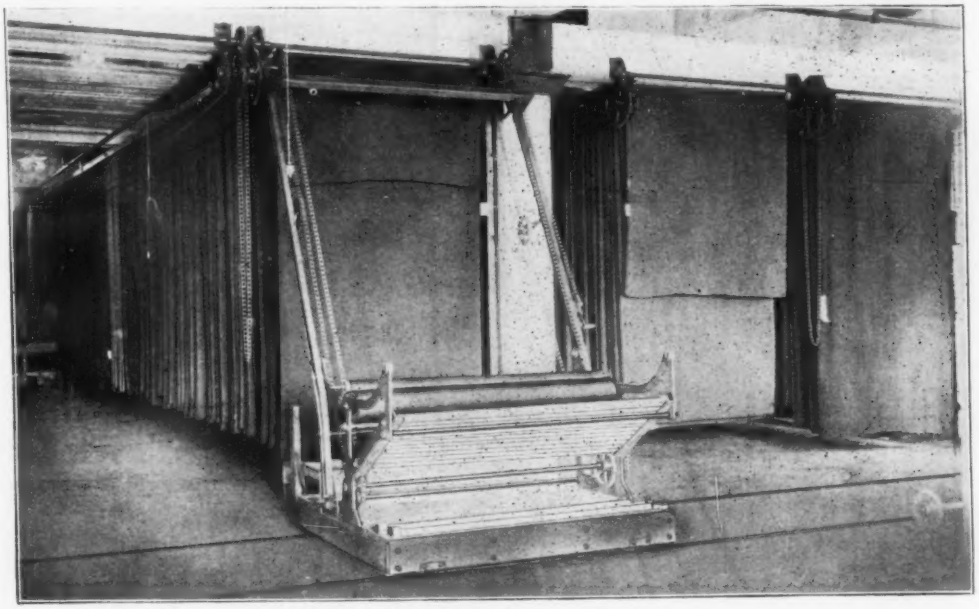
Fig. 2 shows the Walker measurer attached to the warper reel to indicate the number of revolutions of the reel and thus regulate the total length of the warp. In this position it takes the place of the ordinary tooth wheel and worm gear. Its great advantage over the old toothed wheel chalk-marked is that a link of chain is so much larger and so easily seen that the warper can tell at a glance just where the warp is, and give all his attention to the yarn. In a short time this machine, the manufacturers state, will pay for itself in the saving of time, labor and mistakes, which often occur by chalk-marking the toothed wheel now used on the end of the mill.

Fig. 3 shows the measurer attached to the small top roller of the drums of a beaming frame. The length of the cut can be easily regulated by changing the length of the chain, each link representing one yard. The measurer is equally serviceable for chain beaming and quill winding machines, the chain of detachable links being greatly superior to any combination of gears.

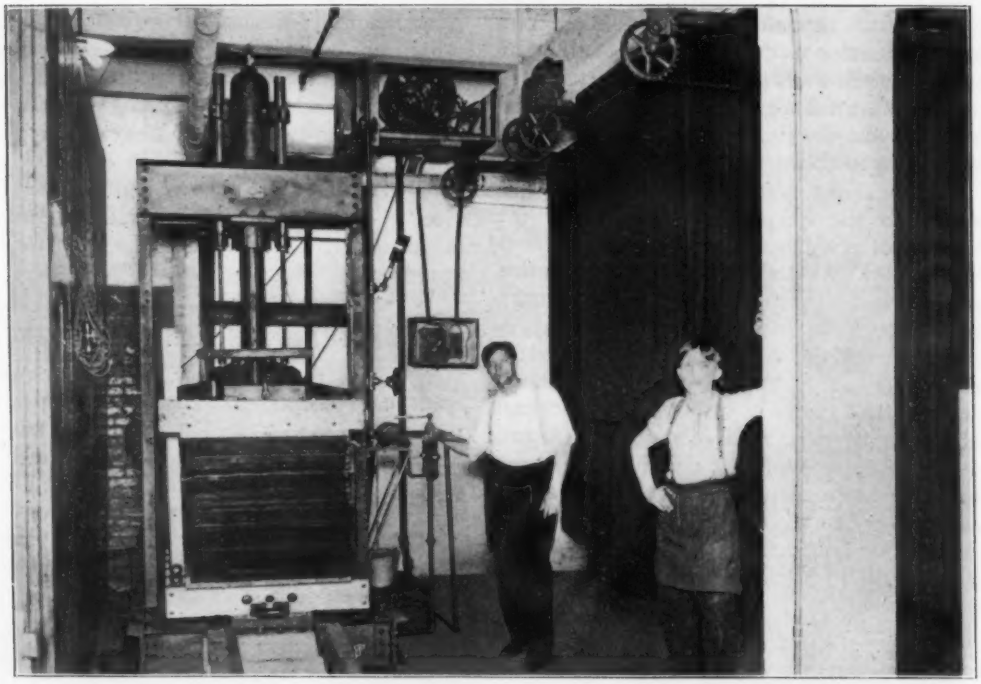
The Walker Measuring Machine Co. are able to refer those interested in this device to a large number of mills in which the measurer has been in successful use for a number of years.

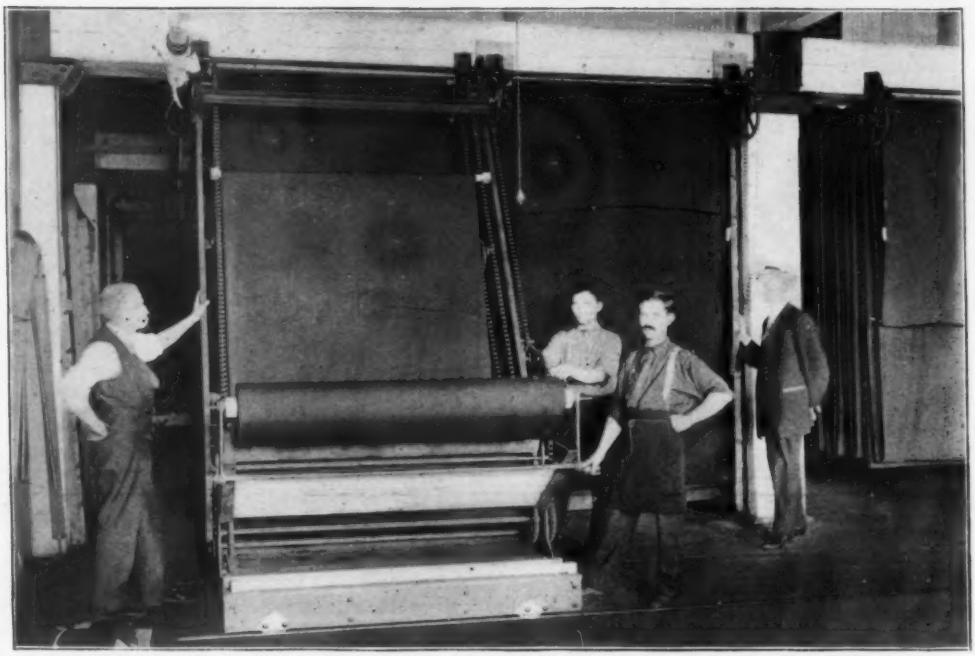
CLOTH SHRINKING AND FINISHING.

Much interest has been shown in the new cold water shrinking, hanging and finishing equipment for worsted and woolen fabrics recently introduced to the trade by the Hydraulic Press Mfg. Co., Mount Gilead, Ohio. The treatment of worsteds and woolens by the cold water method is as old as the manufacture of cloth itself, and the reason why it is not now in general use is that it is too slow for the large clothing manufacturers. The Hydraulic Press Mfg. Co., however, have placed on the market a complete equip-



A CLOTH SHRINKING AND FINISHING MACHINE.



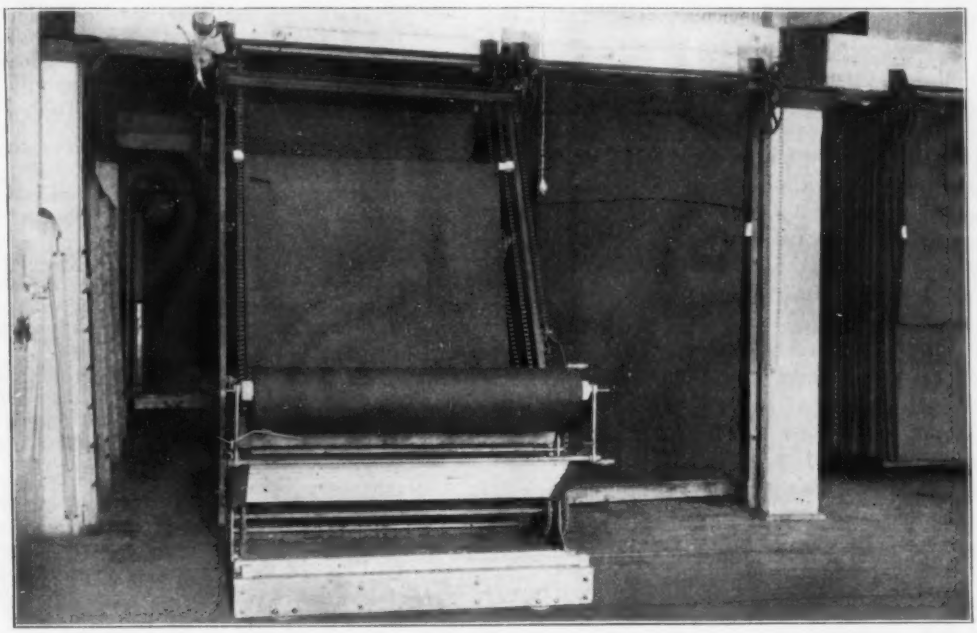


VIEWS SHOWING THE COLD WATER PROCESS AND EQUIPMENT OF SHRINKING AND FINISHING.

ment designed not only to London shrink worsteds and woolens, but to do it in less time than by any other method. Their process consists of the direct application of water to the fabric. The Hydraulic Press Mfg. Co. claim that any fabric which can be shrunk by the old-fashioned blanket system (London shrunk) will not be harmed by the direct application of water, and that by the last named method the fabrics are more uniformly moistened and shrunk and the pattern is not disturbed in any way.

The cold water system is illustrated by the accompanying photographs taken at the plant of the Royal Tailors, Chicago, Ill. After the cloth has been examined it is laid down behind the tank, passed into the water slowly so as to wet every fiber, then passed through squeeze rollers to remove all the surplus water, leaving moisture in the cloth to the extent of about 50 per cent. of the weight of the goods. The cloth is then rolled on a cold roller and left for about three hours. The cloth is then dried. To get the best results this must be done naturally, as it is claimed that a high temperature will harden the yarns and make them feel harsh, which is the one feature to be avoided.

By the old method the goods are hung by two men, one on either side of the piece, which is drawn over the rollers by the list or selvage, sometimes causing the pattern to be pulled down on the sides. The new hanging device furnished by the Hydraulic Press Mfg. Co. is shown in the accompanying illustrations. By this device the cloth is carried up to the ceiling racks full width, overcoming the bad feature of hand hanging, each fold being of the same length without wrinkles, and much time being saved. It is stated that the conveyor will hang 54 yards of 6/4 goods per minute. It can also be used for any number of ceiling racks, as it is on a truck and can be moved from one rack to another. By using a lever the uprights are raised out of the sockets on one rack and the truck pushed to the next. The lever is then released, and the uprights rest in the next sockets ready to receive the goods. The distance between the folds of cloth when hung



A CLOTH SHRINKING AND FINISHING MACHINE.

can be spaced to suit the weather by using the spacing handle, one turn moving the roller and cloth about 3 inches on the hanging rack.

The racks are endless chains of the desired length, fastened to the ceiling to make them firm and are heavy enough to sustain any weight of cloth. After the cloth is dry and ready to be taken down the operator has only to work from the head end of the racks. The cloth rollers drop into trucks or on tables as desired. It is not necessary to pull them down and the cloth is not stretched in any way. The goods are pressed in a hydraulic press. If a high finish or luster is wanted, press boards are placed on the front and back of goods and the cloth given a heavy pressure of about 50 tons. If a dull finish is desired, the boards are placed on the back of the goods only, and not given so much pressure. On worsted fabrics 15 to 18 tons is sufficient and the cloth can be taken out in about four hours. On cashmeres, velours or soft finished fabrics the boards are placed on the back as on worsteds, the pressure required being about 20 to 25 tons for six hours. Steam, hot calenders, or heat of any description are not used in this process as it is claimed it will destroy the good effects of water shrinking.

The press shown in the illustration is of an improved, inverted hydraulic type equipped with a gauge so that the operator knows what pressure is being applied at all times. This is essential in order to get a uniform finish on the different pieces, as all fabrics of the same weight and texture should receive the same amount of pressure. The hydraulic press is the only kind that is equipped with an accurate gauge or indicator. The new style inverted press can be placed in a building without cutting the floor, and can be moved at will. Application has been made for patents covering the entire equipment, which is adapted for both the mill and clothing trade.

The number of pounds of spun yarn turned out by the Indian mills during the year ended March 31, 1909, was 656,830,279, and the number of yards of woven goods produced in the same period was 824,489,164.

Enlargements and Improvements.

*Connecticut, Danbury. The new brick mill to be built for A. E. Tweedy, proprietor of the Tweedy Silk Mills, will be 60 by 160 ft., 2 stories high. New equipment will be required.

Massachusetts, Florence. A small addition has been made to the equipment of the mill of the Nonotuck Silk Co. at Leeds.

*Massachusetts, Florence. Changes at the Nonotuck Silk Co.'s plant at Leeds comprise the addition of a small amount of machinery in several of the departments of the spun silk mill.

Massachusetts, Holyoke. A lot of land has been purchased from the Water Power Co. by the Goetz Silk Mfg. Co., and eventually a mill will be built on the site. When construction work will begin has not been decided.

*Massachusetts, Northampton. Contract has been awarded by Belding Bros. Co. for an addition to dye house, to the H. Wales Lines Co. of Meriden, Conn.

New Jersey, Wharton. The Singleton Silk Mfg. Co. is installing a new engine and dynamo in one of their mills.

Pennsylvania, Allentown. The J. S. Mack Silk Co. is reported as having negotiated for the purchase of the Reading Silk Mill, a plant with 250 looms and throwing department. Operations will be started up in the new addition at once.

Pennsylvania, Doylestown. It is reported that the Doylestown Silk Mills, recently started here, are about to put up an addition to their present plant, 75 feet long, and put in a large number of new looms.

Massachusetts, New Bedford. Plans for repairs to the mill of the New Bedford Cordage Co., recently severely damaged by fire, have been filed with the inspector of buildings, and a permit has been issued for the necessary construction work.

*Massachusetts, Newburyport. The Newbury Cordage Co. is the name of the new concern which will operate the plant formerly conducted by the Bay State Cordage Co., and more recently by the firm of Burley & Stevens.

*Massachusetts, North Brookfield. It is reported that the Oxford Linen Mills, at present erecting three new buildings, will erect two 4-story buildings in the spring, one of which will be 700 by 120 ft., and the other 600 by 80 ft. This company is reported to contemplate the manufacture of fine linen garments for women.

Massachusetts, Rockland. An addition, 70 by 52 ft., is being built on the west side of their present plant for the Rockland Webbing Co.

Massachusetts, Westboro. Seven new looms are being added to the plant of J. S. Mason, making a total of 51 looms operated by him.

*Massachusetts, Williamstown. The John S. Boyd Co. will begin operations about September 1, manufacturing corduroys and velvets. As reported previously, they are fitting up the old finishing plant.

Dyeing, Bleaching, Printing, Etc.

FACE FINISH.

BY ELMO.

In the finishing of broadcloths, kerseys, beavers and goods of similar character, requiring the face or luster finish, it is not infrequently the case that too much is expected of the steaming or boiling process, to the neglect or oversight of the importance of other parts of the work.

The prevailing idea, which is only partly correct, that the steaming produces the luster, is often misleading, and in the case of young finishers who have had little experience on this class of work, tends to lead to imperfect results.

The writer's attention was recently called to two instances of mills on this class of work, where the results were not satisfactory; and the impression on the part of the manager in each case seemed to be that there was some serious fault or deficiency in the steaming of the goods. The case was rendered doubly puzzling to them from the fact that they supposed they were well equipped for the work, a supposition which was well founded.

Becoming interested in the cases, we took pains to procure samples of the goods, and found that there was a difficulty existing which could never be corrected in the steaming: a difficulty which at once suggested the need of more skill or care in preparing the cloth for steaming.

Now we wish to assert that steaming alone can never develop a luster of any consequence, and that the proper preparation and condition of the cloth for steaming is equally important with the steaming itself. To demonstrate this point we might ask the reader to take a piece of broadcloth having a good luster finish, and note the difference in the appearance of the face and back. It will be found that however perfect may be the luster on the face, there will be far less, if any on the back.

If the steaming produces a luster, why does not the back show it as well as the face? Simply because the back has not been prepared, by a suitable gigging to bring about such a result.

It is impossible to secure a satisfactory luster upon a cloth having the fibers matted and laying in every direction, as they appear in the felted surface of the cloth as it comes from the fulling mill.

The raising of a suitable nap, and above all a perfect parallelism of all the fibers showing upon the surface of the cloth are as important as the steaming. The luster is a characteristic of the wool fibers, and the gigging and subsequent steaming only tend to put them into a position and condition to show the natural luster to the best advantage, and to insure its permanency upon the face of the cloth.

We found by a careful examination of the samples above referred to, that the gigging had been insufficient. Many of the fibers upon the face of the cloth were still in their felted condition, showing through the scanty nap, which was not sufficient to wholly cover up the tangled fibers beneath. All the visible fibers upon the face of the cloth should have been included in the nap, and properly laid by a wet gigging or brushing preparatory to being given a permanency by the steaming. Skill and good judgment are needed for this work. We have known of finishers who cut short in the gigging to avoid weakening the fabric, because they were not quite sure of themselves on this point, and preferring to err on the safe side.

The best results are obtainable only by having a nap that will thoroughly cover the felt and threads beneath, and making sure it is well laid before the steaming is done. It is necessary to have a suitable felt from which to produce the required nap, and if this is lacking, the fault is either in the fulling or in the construction of the cloth in the loom. Some finishers use the wire napper for a part of the work, and finish up with the teasels, which is an excellent plan. Where the work is done wholly upon the

gig it is best to start the work with old and well worn teasels, as sharp teasels will act too harshly upon the unbroken felted surface of the cloth, tearing out fibers that should remain as a part of the nap.

As the work proceeds sharper teasels should be inserted in order to work effectively through the nap already produced, reaching the bottom and adding to the density of the nap. If the work is done on a double cylinder gig, the cylinders should run in opposite directions, with a grade of better work in the second than in the first cylinder, until the gigging is near completion, when both cylinders should be run in the same direction to finish. Where a single cylinder gig is employed, reversing the cylinder or the cloth will serve the same purpose as running the two double cylinders opposite.

Goods composed of all wool stock will usually stand and require the raising of about all the fibers constituting the felted face of the cloth; but care should be observed not to work upon the threads of the cloth to injure them. Sometimes in the finishing of low grade goods, having considerable shoddy, it is advisable to hold off a little, leaving a part of the felt intact, but raising sufficient to cover it well. This gives a certain stability to the cloth and avoids the danger of tender goods. At all events, the nap should be thoroughly laid, and all visible fibers parallel in order for the steaming to do justice to the work.

THE DELAHUNTY DYEING MACHINE.

The illustrations, Figs. 1 and 2, in the article describing the Delahunty Raw Stock Dyeing Machine in our August issue, were unfortunately transposed. Fig. 1 shows the machine bringing up raw stock and Fig. 2 shows the machine in operation.

The number of spindles now in operation in Italy is over 5,000,000 and the power looms over 150,000. The number of workmen is estimated at 250,000. The consumption of cotton in 1906 was 384,410,660 pounds, which would be equivalent to 768,821 bales of 500 pounds each.

NOTES ON WORSTED FINISHING.

From the Dyer and Calico Printer.

Cloths composed of wool of two different qualities behave very differently from a fabric made from one grade of wool throughout. The botany portion will shrink up to a much greater extent than the coarser part; this, unless precautions are taken, results in the cloth assuming a crapy, cottered appearance which is beyond all remedial processes.

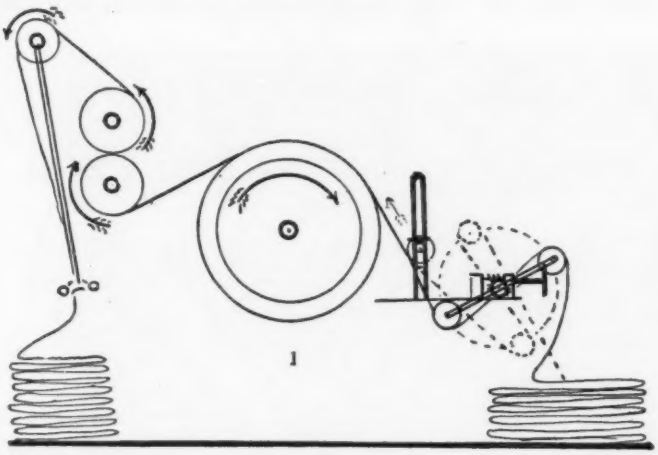
The two most important points which affect the finish of these goods are the crabbing and steaming, and with no other fabric do these processes play such an arbitrary part as with low and hard worsteds. During crabbing, they must be kept under tension both in the direction of length and width, and this tension must not be relaxed during the rewinding on to the blowing roll. After winding on this, the covering wrapper must be tightly secured at both ends to prevent the steam from issuing too easily. Clean dry steam is essential, and the roll should be blown until nothing but dry steam emerges. With pieces of excessive length it may be necessary to rewind after the first blowing, and repeat the blowing with the outer end next to the steam can. If pulled off hot, the cloth should be drawn over an elevated frame, otherwise it will be certain to crimp when cuttled into folds while hot and soft. A good plan is to allow it to get quite cold on the roll before unwinding. This, of course, necessitates having a quantity of spare steam cans and keeping the work in advance of requirements.

So prone are crossbreds to shrink and show cockled places, that a slight wetting from a shower of rain is very often sufficient to cause these marks, after which they can never be got straight again. Careful and thorough crabbing and blowing set the design so firmly that they take no harm even after prolonged boiling in the dye vessel, but it should be noted that they are more liable to crease and crimp than goods of better quality.

The lowest makes of worsteds generally go straight to the dye vessel from the crab.

Many qualities will not stand scouring, as it impoverishes the cloth and reduces the handle to that of an old stocking. After dyeing, the next process is extracting, followed by weighting or filling when required. The centrifugal extractor is the safest means of freeing the fabric from superfluous water; squeezers are permissible for woolen but are apt to crimp worsted cloths. The latest form of extractor is on quite another principle to the revolving cage, and consists of a narrow trough over the top of which the fabric is drawn slowly at full width. The trough is partially exhausted by an air pump, and the vacuum sucks out the water from the moving cloth. This form of extractor is useful for faced goods and other makes with which it is essential not to disturb the face, but the fabric must be sufficiently heavy and close textured to form a vacuum. Worsteds, unless of the very heaviest kind, allow the air to penetrate too quickly to exhaust the moisture.

Previous to either weighting or filling, worsteds should be swung in the extractor until nearly dry. Failing this, the cloth carries so much water that it speedily dilutes the solution below the working strength, and the cloth does not absorb the proper amount.



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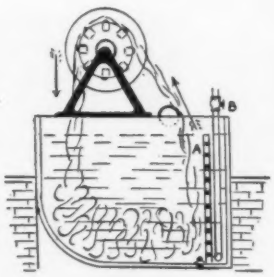

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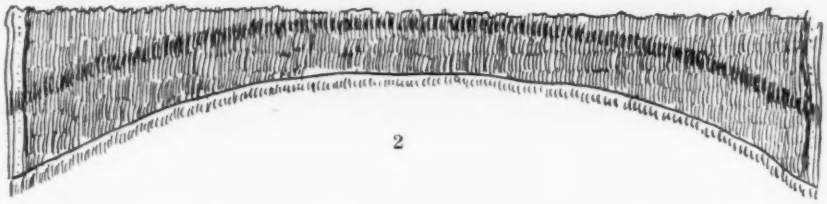

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3

What were formerly popular under the name of wool backs illustrates this shoddy partnership. These had a thin veneer of worsted overlaying a thick shoddy back. They

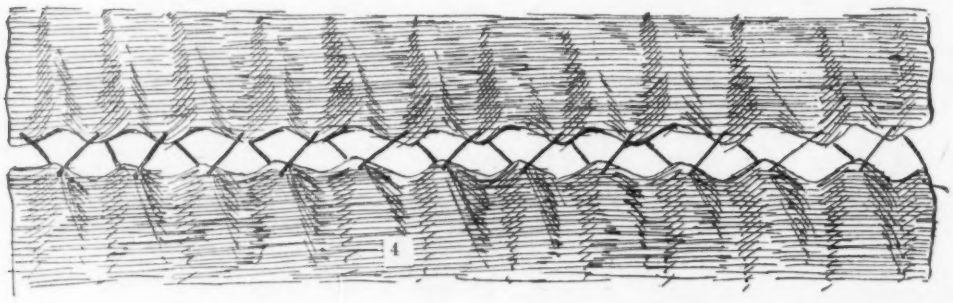
required careful treatment, as the nature of the back necessitated a thorough scouring which was apt to crimp the face if overdone, while crabbing and blowing were always applied first to prevent streakiness. Wool backs were also raised gently on the back so as to obtain a full, soft cover, and this had also to be performed with caution in order not to drag off any of the wool. In some cases the goods were raised in the wet state, after scouring and previous to dyeing. When this was the case the cloth required a round or two on the dry beating gig after tentering, with the object of lifting up the tangled nap.

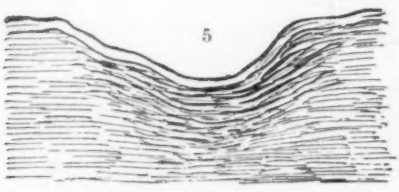
What are known as French backs possess a fine diagonal twill on the face with a soft, broad one on the back. They are not commonly raised on the back, but are cut slightly just to remove the long, traily hairs. It is the usual thing to cut worsteds perfectly bare and clean on the face, the exceptions being estamenes and others of the serge classes. The finish of the backs are either raised, natural, or plain; natural backs retaining their slight cover untouched by the cutters, while plain backs are cut clean but not so close as is the face.

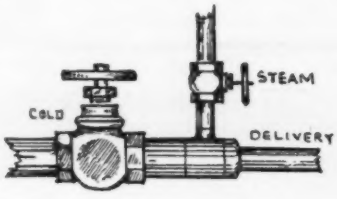
Fine twills and other designs made from Saxony wools take considerably more work in clearing out the figure, since the cover is shorter, more moss like, and difficult for the cutters to lay hold of. For work of this description, a useful tool is the glass paper roller revolving on the breast of the cutting machine. This roller is covered with fine glass paper and revolves against the ascending cloth, scrubbing out the short fibers and causing them to stand erect.

Lifting fibers by means of a stiff brush between the cuts is also a good method, the brushing being done by a cylinder covered with stiff bristles known as a scrub, Fig. 1. This machine is separate from the cutting machine, and the degree of scrubbing given is regulated by the two brake rollers at the front of it. As seen in the illustration the fabric passes between two rollers fixed about six inches apart; these can be rotated to any angle, as shown by the dotted lines, and the breakage is in proportion to the angle of deflection. In the case of worsteds with a plain back, this is always cut first before the face is touched, on account of the weaver's knots which occur more or less in all cloths.

(To be continued.)







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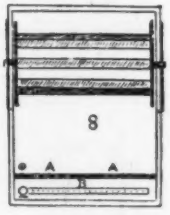


THE ERCKENS & BRIX DYEING MACHINE.

(From L'Industrie Textile.)

There are numerous machines for dyeing cotton yarn on spinning and weaving bobbins. They have enjoyed a certain popularity owing to the advantages which such a method of dyeing promises, but manufacturers have encountered so many difficulties in practice that many of them have returned to the primitive process of dyeing in skeins. Our object here is not to give a description of different machines used for dyeing on the bobbin, of which there are a number that are in successful operation, but rather to call attention to the Erckens & Brix apparatus. This machine has been thoroughly tested for a considerable time at Roubaix with very good results.

It consists of a vat made of wood or iron, according to the class of work to be done. The vat is square and divided into two compartments by a partition which is slightly lower than the top of the vat. Each one of these compartments is equipped with horizontal pipes fitted to receive the vertical tubes on which the bobbins are placed. This system of piping is connected with the suction and outlet of a pump, Fig. 1. The advantage claimed for the machine as compared with other circulating dyeing machines is that both compartments can be used at the same time. The liquor is first forced through the bobbins in the first compartment. When this is filled the liquor flows over the partition into the second part of the vat and is sucked through the bobbins to the pump by which it is again driven through the bobbins in the first compartment. Thus in the first compartment the liquor is driven from the center of the bobbin to the outside and in the second compartment it is forced from the outside of the bobbin to the center. The direction is reversed by shifting the belt that drives the pump.

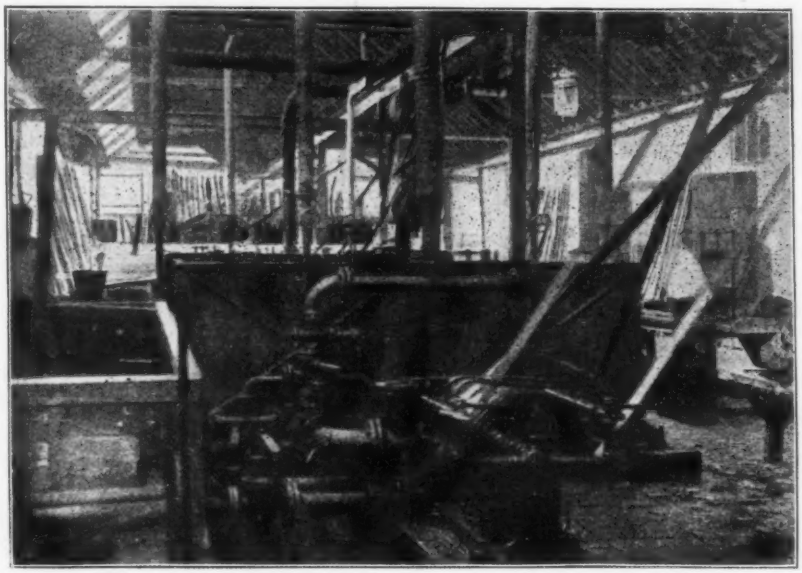


FIG. 1.

Another new feature of this machine is the method of mounting the yarn on the spindles. The yarn is wound in cylinder form, shown in Fig. 2, on a wooden pin about 1 1/4 inches in diameter. The tubes which are to receive the bobbins are manufactured very carefully of nickel and have a diameter of

one inch, so that the yarn cylinders can be slipped on them very easily, Fig. 3. To place the yarn on the nickel tubes the point of the tube is pressed against the wooden plug. The latter is forced out of the yarn and the yarn cylinder slips on to the tube, Fig. 4. During the dyeing process the yarn is not disarranged. When the nickel tubes have been filled with yarn, they are placed in position in the vat which holds from 30 to 100 tubes. Each one carries from 7 to 8 yarn cylinders, so that 900 pounds of yarn is colored at one time.

This system is of interest because in the first place it dispenses with the paper tubes, which are easily damaged, while the nickel

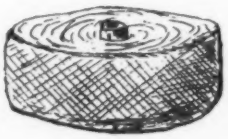


FIG. 2.

tubes always retain their shape. Because of the large diameter of the tube, the large quantity (900 to 1,100 pounds) of yarn colored at one dip, and the diameter (7 1/2 inches) of the yarn cylinders, the loading and unloading of the machine can be effected very quickly. Four expert workmen can load a machine with 900 pounds of cotton yarn in half an hour. There is also a very small space between the bobbins. When the bobbins are mounted in position they are held in place by a cross-bar which is in turn held by a screw. In this way the yarn is held in position without danger of displacement. When the yarn is colored and rinsed, the yarn cylinders are removed from the tube and placed on wooden rolls. These are tapered slightly at one end so as to introduce them easily into the center of the cylinder. The yarn comes from the machine in the same form in which it was entered and there is no tangling of the threads to cause difficulty in winding.

The inventor of the machine, who is a practical dyer, devised a method of adding dyestuff during the dyeing process in order to bring the yarn to the required shade. In many machines this is done by running fresh liquor from an upper reservoir to the dye vat. This is apt to cause unevenness of shade. The new method consists in connecting the fresh liquor by pipes with the suction of the pump. The supply of fresh

FIG. 3.

FIG. 4.

liquor is then regulated by a valve and it is claimed that it can be fed gradually so that the shade of the yarn is kept uniform throughout the batch.

The machine is adapted for sulphur colors, for bleaching, diazotizing and developing. It may be thought that such a machine as this would have a rather restricted use. Nevertheless, there is quite an advantage in dispensing with the reeling process which requires much care and under the most favorable circumstances involves from 3 to 5 per cent. of waste.

*Delaware, Wilmington. Joseph Bancroft & Sons Co. have under construction additions to their plants, consisting of a new bleaching house, singe house, storehouse, boiler house, and additions to their steam plants and filtration plant, which will cost approximately $175,000.

DYE RECIPES.

The following recipes appear in the Dyers' Supplement, which is issued each month by the TEXTILE WORLD RECORD. The Supplement contains the colored samples, dyed according to recipes given. The selection of samples is carefully made, and it is the aim to show shades which are of especial interest to the dyer, and which the requirements of the market demand. The Dyers' Supplement is a 16-page pamphlet, in convenient form for preservation. Subscription price for the Dyers' Supplement $1.00 per year.

Recipe No. 129.

Brown on Cotton Yarn.

Paranil Brown B on 100 lbs. cotton yarn. Prepare the dye bath with

4 lbs. Paranil Brown B.
(Berlin Aniline Works, 213 Water St., N. Y.)
40 lbs. Glauber's Salt Crystals.
2 lbs. Soda Ash.

Enter at 180° F., and dye at a temperature of 200° F., for one hour. Rinse and then develop in a bath made up as follows:

Dissolve 1 lb. 6 ozs. Paranitraniline together with 3 1/4 lbs., 32° Tw., Muriatic Acid, and 1 quart of boiling water. When dissolved this should be made up to 3 gallons with water.

3/4 lb. Sodium Nitrite is then dissolved in 1 quart of water, and this solution, together with the acid paranitraniline solution are made up to the necessary quantity for developing.

3 lbs. Sodium Acetate are then added to the bath, and the dyed yarn worked at ordinary temperature for 1/2 hour, then rinsed and dried.

Paranil Brown B possesses good fastness to washing and most of the common color-destroying agencies.

Recipe No. 130.

Blue on Worsted Yarn.

Alizarine Cyanole E F on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Alizarine Cyanole E F.
(Cassella Color Co., 182 Front St., N. Y.)
4 lbs. Sulphuric Acid.
20 lbs. Glauber's Salt.

Enter at 140° F., and dye at a boil for one hour.

Alizarine Cyanole E F is a new wool dyeing color which is characterized by excellent fastness to light and level dyeing properties. It will be found of great value in the dyeing of yarns, where fastness to light is required.

Recipe No. 131.

Brown on Cotton Yarn.

Pyrol Brown X on 100 lbs. cotton yarn. Prepare the dye bath with

10 lbs. Pyrol Brown X.
(C. Bischoff & Co., 451 Washington St., N. Y.)
20 lbs. Sodium Sulphide.
5 lbs. Soda Ash.
60 lbs. Common Salt.

Dissolve the dyestuff and the sodium sulphide separately and add to the bath, together with the soda ash and common salt. Boil up the bath, allow to cool for a short time. Enter the yarn, and dye at a temperature just below the boil for one hour.

Pyrol Brown X gives dyeings of a reddish brown color which possesses the usual fastness of the sulphur colors.

Recipe No. 132.

Blue on Worsted Yarn.

Anthracene Chrome Blue R R W on 100 lbs. worsted yarn. First mordant the yarn in a bath containing

3⅓ lbs. Potassium Bichromate.
3 lbs. Tartar,

entering the material at 120° F., and bringing slowly to a boil and boiling for 1 1/2 hours.

The material is then entered into the dye bath made up with

3 lbs. Anthracene Chrome Blue R R W.
(Cassella Color Co., 182 Front St., N. Y.)
2 lbs. Acetic Acid.

The material is entered at 100° F., brought slowly to a boil, and dyed at a boil for 1 1/2 hours.

Anthracene Chrome Blue R R W possesses remarkable fastness to practically all of the common color-destroying agencies, and gives an excellent shade of blue.

Recipe No. 133.

Black on Broadcloth.

Logwood Black on 100 lbs. worsted cloth. Prepare the dye bath with

18 lbs. Hematine Paste 228.
4 lbs. Fustic Paste A W.
1½ lbs. Alizarine Red W B paste.
(American Dyewood Co., 115 High St., Boston, Mass.)

Mordant with

3 lbs. Bichromate of Potash.
3 lbs. Cream of Tartar.

The goods are first mordanted, and then dyed

in a separate bath. In each bath the goods are entered at a lukewarm temperature, the bath raised slowly to a boil and boiled 1 1/2 hours. Recipes 133 to 136 illustrated common errors in the dyeing of logwood blacks on wool, and the proper methods of obtaining standard satisfactory results. The value of logwood for producing cheap, fast and rich blacks on all forms of wool is not fully appreciated because it is frequently improperly dyed. This dyeing illustrates the fault of using a mordant not suited to properly develop the Hematine.

Recipe No. 134.

Black on Broadcloth.

Logwood Black on 100 lbs. worsted cloth. Prepare the dye bath with

18 lbs. Hematine Paste 228.
4 lbs. Fustic Paste A W.
1½ lbs. Alizarine Red W B Paste.
(American Dyewood Co., 115 High St., Boston, Mass.)

Mordant with

3 lbs. Bichromate of Potash.
3 lbs. Half Refined Tartar C.
1 lb. Sulphate of Copper.

The goods are first mordanted, and then dyed in a separate bath. In each bath the goods are entered at a lukewarm temperature, the bath raised slowly to a boil and boiled for 1 1/2 hours. This dyeing shows a well chosen mordant and shows the Hematine properly and fully developed.

Recipe No. 135.

Black on Broadcloth.

Logwood Black on 100 lbs. worsted cloth. Prepare the dye bath with

11 lbs. Hematine Paste 228.
5 lbs. Fustic Paste A W.
2½ lbs. Alizarine Red W B Paste.
(American Dyewood Co., 115 High St., Boston, Mass.)

Mordant with

3 lbs. Bichromate of Potash.
3 lbs. Half Refined Tartar C.
1 lb. Sulphate of Copper.

The goods are first mordanted, and then dyed in a separate bath. In each bath the goods are entered at a lukewarm temperature, the bath raised slowly to a boil, and boiled 1 1/2 hours. This illustrates an attempt to make an extremely cheap black by cutting down the Hematine and adding an excess of Fustic. The result is not fast.

Recipe No. 136.

Black on Broadcloth.

Logwood Black on 100 lbs. worsted cloth. Prepare the dye bath with

20 lbs. Hematine Paste 228.
3½ lbs. Fustic Paste A W.
1½ lbs. Alizarine Red W B Paste.
(American Dyewood Co., 115 High St., Boston, Mass.)

Mordant with

11 lbs. Bichromate of Potash.
3 lbs. Half Refined Tartar C.
1 ib. Sulphate of Copper.

The goods are first mordanted, and then dyed in a separate bath. In each bath the goods are entered at a lukewarm temperature, the bath raised slowly to a boil and boiled 1 1/2 hours. This dyeing gives a standard, low cost black, rich and fast.

Recipe No. 137.

Yellow on Cotton Yarn.

Paranil Yellow G on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Paranil Yellow G.
(Berlin Aniline Works, 213 Water St., N. Y.)
40 lbs. Glauber's Salt (Crystals).
2 lbs. Soda Ash.

Enter at 180° F., and dye at a temperature of 200° F., for one hour. Rinse and then develop in a bath made up as follows:

Dissolve 1 lb. Paranitraniline together with 2 1/2 lbs., 32° Tw., Muriatic Acid, and 1 quart of boiling water. When dissolved this should be made up to 3 gallons with water.

1/2 lb. Sodium Nitrite is then dissolved in 1 quart of water, and this solution, together with the acid paranitraniline solution are made up to the necessary quantity for developing.

2 1/4 lbs. Sodium Acetate are then added to the bath, and the dyed yarn worked at ordinary temperature for 1/2 hour, then rinsed and dried.

Paranil Yellow G possesses good fastness to washing and most of the common color-destroying agencies.

Recipe No. 138.

Blue on Worsted Yarn.

Alizarine Direct Blue E B on 100 lbs. worsted yarn. Prepare the dye bath with

3½ lbs. Alizarine Direct Blue E B.
(H. A. Metz & Co., 122 Hudson St., N. Y.)

15 lbs. Glauber's Salt.
4 lbs. Sulphuric Acid.

Enter at 120° F., bring slowly to a boil and dye at a boil for one hour.

Alizarine Direct Blue E B gives a very bright blue and will be found very valuable for dyeing compound shades as well as a self color.

Recipe No. 139.

Red on Worsted Yarn.

Brilliant Acid Carmine B on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Brilliant Acid Carmine B.
(Geisenheimer & Co., 189 Front St., N. Y.)
4 lbs. Sulphuric Acid.
15 lbs. Glauber's Salt.

Enter at 120° F., and dye at a boil for one hour.

Brilliant Acid Carmine B possesses good fastness to light, acids, soaping, and alkali. It is a very level dyeing color and does not stain white cotton threads. It should not be used in copper apparatus.

Recipe No. 140.

Brown on Worsted Cloth.

Union Brown H Y on 100 lbs. worsted cloth. Prepare the dye bath with

3½ lbs. Union Brown H Y.
(Read Hoiliday & Sons, 11 Gold St., N. Y.)
30 lbs. Glauber's Salt.

Start cold and raise up to 80° C. in one-half hour, and continue working at that temperature for a further half hour; then cool down.

Recipe No. 141.

Blue on Worsted Yarn.

Fast Chrome Blue G on 100 lbs. worsted yarn. Prepare the dye bath with

4 lbs. Fast Chrome Blue G.
(C. Bischoff & Co., 451 Washington St., N. Y.)
4 lbs. Sulphuric Acid.
15 lbs. Glauber's Salt.

Enter at 120° F., bring slowly to a boil and dye at a boil for one hour. Then add

3 lbs. Potassium Bichromate

and continue the boiling for 3/4 of an hour longer.

Fast Chrome Blue G, like most of the after-chromed colors, possesses very good fastness to light and washing, and other color-destroying agencies.

Recipe No. 142.

Brown on Worsted Yarn.

Salicine Brown S on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Salicine Brown S.
(Kalle & Co., 530 Canal St., N. Y.)
5 lbs. Acetic Acid.

Enter the material at 100° F., bring slowly to a boil and dye at a boil for 40 minutes, then add

1 lb. Sulphuric Acid,

and boil for 10 minutes longer. Then add

1½ lbs. Potassium Bichromate,

and continue the boiling for 30 minutes longer.

Salicine Brown S is level dyeing, and extremely fast to light. It is also suitable for dyeing on chrome mordant.

Recipe No. 143.

Green on Worsted Yarn.

Sulphon Acid Green B on 100 lbs. worsted yarn. Prepare the dye bath with

2½ lbs. Sulphon Acid Green B.
(Farbenfabriken Co., 66 Lafayette St., N. Y.)
15 lbs. Glauber's Salt.
3 lbs. Acetic Acid.

Enter at 140° F., raise slowly to a boil and dye at a boil until the bath is completely exhausted. Then add

1¼ lbs. Potassium Bichromate,

and continue the boiling for 3/4 of an hour.

Sulphon Acid Green B possesses very good fastness to milling, dyes in a weak acid bath, and does not stain white cotton effects in woolen pieces.

Recipe No. 144.

Blue on Cotton Yarn.

Thiogene New Blue J L on 100 lbs. cotton yarn. Prepare the dye bath with

10 lbs. Thiogene New Blue J L.
(H. A. Metz & Co., 122 Hudson St., N. Y.)
10 lbs. Sodium Sulphide (Crystals).
5 lbs. Soda Ash.
40 lbs. Common Salt.

Dissolve the dyestuff together with the sodium sulphide and add to the dye bath together with the soda ash and common salt. Dye for one hour at a temperature just below a boil, keeping the material below the surface of the liquor as much as possible.

Thiogene New Blue J L gives particularly bright shades for a sulphur color, and will be found much faster to milling and washing than the ordinary direct cotton blues.

Mill News.

Those interested in receiving early and more complete investigated information of projected new mills, enlargements improvements, fires facts and gossip of the trade are referred to the Textile Advance News, issued weekly by the pub lishers of the Textile World Record, at $15.00 per year.

COTTON.

New Mills.

*Georgia, Athens. The machinery of the Huguenot Mills, Greenville, S. C., recently sold at auction, has been purchased and is being removed to the new plant of the White City Manufacturing Co.

*Kentucky, Louisville. At the first of this week the new Puritan Cordage Mills began manufacturing. They have equipped one of the buildings of the Mayfield Woolen Mills Clothing Co. with 2,000 ring spindles and 20 cards, and are manufacturing sash cord, rope, twines, and clothes lines. Charles T. Wolfe is president; George W. Babcock is treasurer, and C. L. Sweet is superintendent. Mr. Wolfe and Mr. Sweet attend to the buying. The product is sold through Louisville Selling Co.

*Massachusetts, Boston. Contract has been awarded and work started on the foundations of the new plant for the Maverick Mills Co.

*Massachusetts, New Bedford. Contract has been let for the erection of a new 4-story brick building, 136 by 793 ft., with a storehouse, 69 by 125 ft., 3 stories high, and picker house, 100 by 200 ft., 2 stories high, for the Nashawena Mills.

*Massachusetts, New Bedford. Plans have been filed by the New Bedford Cotton Mill Corp. for a spinning mill 130 by 383 ft., 4 stories high; a 147 by 393 ft. weave room, 1 story high, with saw-tooth roof; a cloth room, 50 by 268 ft., 2 stories high; a boiler house 38 by 85 ft., 2 stories high; engine room 56 by 75 ft., 2 stories high; waste room 20 by 37 ft.; and a storehouse 84 by 140 ft., 3 stories high. As reported previously 80,000 spindles and 1,200 looms will comprise the equipment. Some of the finest lines of cotton goods made in this country will be produced.

*North Carolina, Laurinburg. The Waverly Cotton Mill Co. expects to have their new spinning plant ready to start up operations by September 1. This mill will be equipped with 20,000 spindles for manufacturing hosiery yarns, 16s to 30s, and will be driven by electricity.

*North Carolina, Lexington. Buildings are under construction for the Dacotah Cotton Mills, Inc., organized several months ago, and the officers expect that manufacturing will begin December 1. 9,600 spindles and 240 box looms will be installed for manufacturing colored goods from single 20s yarn. The capital stock is $135,000. C. A. Hunt, Jr., is president, superintendent, and buyer, and W. H. Mendenhall is treasurer. Mr. Hunt has recently awarded contract to the Southern Power Co. for electric power to drive the machinery of the Nokomis Cotton Mills, Wennonah Cotton Mills, and the new Dacotah Cotton Mills.

*North Carolina, Lincolnton. Plans for its plant have been decided upon by the Saxony Spinning Co. The main building will be 1 story high, 75 by 360 ft. As reported previously, 8,600 spindles will be installed for manufacturing combed Sea Island yarns, 2/40s to 2/80s. Edgar Love is president and buyer.

*North Carolina, Marion. Good progress is being made on the construction of buildings for the Marion Mfg. Co. The mill will be four stories high, 132 by 215 ft., and as noted will have capacity of 12,500 spindles and 300 looms for manufacturing brown sheetings. D. D. Little is in charge.

*North Carolina, Rockingham. Ground will be broken during August for the plant of the Entwistle Mfg. Co., and they plan to begin manufacturing about Sept. 1, 1910. The concern will organize with capital stock of $500,000. William Entwistle will be president; George P. Entwistle, secretary and treasurer; and W. B. Cole, vice president, general manager and buyer. They will install 40,000 spindles and 1,000 looms for manufacturing plain white goods. The plant will be operated by steam power. Plans for buildings have not been completed as yet, and no contracts have been given out. The Messrs. Entwistle are connected with the Pee Dee Mfg. Co. of this place; Geo. Entwistle as secretary, and William Entwistle as superintendent. The new mill will be located in the vicinity of the Hannah Pickett Mills, as suggested in a recent report.

Pennsylvania, Philadelphia. Bevins & Ward are starting up the Reliance Tapestry Company at 1729 Gillingham St., Frankford, on couch covers, curtains, etc. The plant, at present, is equipped with three looms, with others to be installed as business improves. The production is sold direct. They are buying 2/20 and 2/30 cotton warps.

Pennsylvania, Philadelphia. A small plant containing two looms, on which they will manufacture handkerchiefs, are being installed in the tenement mill at Mascher and York Sts., by the Philadelphia Handkerchief Co., of which E. Hartley is the proprietor.

Pennsylvania, Philadelphia. The National Textile Company, with Conway & Buckley as owners, are starting up a plant with 16 broad looms for the manufacture of cotton, woolen and worsted fabrics in the old Dolan Mills at Mascher and Oxford Sts.

*South Carolina, Greers. Preliminary construction on buildings for the new Greers Mfg. Co. has been started. This is a $100,000 project to operate 10,000 spindles and 300 looms on print cloths.

Contract has been awarded to the Southern Power Co. for electric power.

*Tennessee, Memphis. The Central Textile Corp. has been incorporated under the laws of Maine with capital stock of $1,000,000. Half of this amount is to be paid in at once. The board of directors are J. A. Goodwin, secretary and treasurer of B. Lowenstein & Bros. Dry Goods Co.; O. C. Armstrong, president of the William R. Moore Dry Goods Co.; T. Stenning Coate, cotton dealer, and W. H. Carter of the American Bag Co. Arrangements have been made for securing a site of about 25 acres at New South Memphis near the plant of the American Bag Co. Contracts are to be placed as soon as possible. The initial equipment will be 25,000 spindles and about 750 looms.

Enlargements and Improvements.

Alabama, Piedmont. The Coosa Mfg. Co. have put in eight new Nasmith combers.

Canada, Montreal. The Canadian Spool Cotton Co., office at 533 Visitation St., have installed new machinery in their new mill at Riverside Park, Maisonneuve, Quebec.

Canada, Montreal. The Dominion Textile Co., Ltd., has decided on several large improvements in the bleaching and printing departments of its mills. It is proposed to transform the Colonial Works into a bleachery, while in the future all printing will be done at the Magog Mills.

Connecticut, Jewett City. Plans for the enlargement of the Ashland Cotton Co. are in the form of a new weave shed, 200 by 100 ft., 2 stories high. Looms in the old mill will be installed in the new building, and it is understood new equipment will be set up in the space thus vacated.

Connecticut, Jewett City. Work will soon be started on a new dam for the Ashland Cotton Co. An electric plant will also be constructed at the dam for the purpose of furnishing about 400 h. p. to be used for lighting the mill and operating electric motors which are to be installed.

Connecticut, Pine Meadow. Extensive repairs and improvements are being made in the mill of D. B. Smith & Son, the plant being closed for this purpose.

Connecticut, Wauregan. One hundred eighty-two new automatic looms and 480 spindles have been installed in the plant of the Wauregan Co.

Georgia, Athens. A second story is being built on one of the buildings of the Southern Mfg. Co. New machinery will be required. A large addition was completed last April.

*Georgia, Columbus. Construction work was started August 3 on the proposed new mill for the Columbus Mfg. Co. As reported previously 20,000 spindles and 600 looms will be installed on completion of the work, making total equipment 50,000 spindles and 1,400 looms. They manufacture sheetings. The capital stock has been increased to $600,000. The mill is operated by electric power.

Georgia, Columbus. Plans are being prepared by the Eagle & Phenix Mills for an addition to be built to the picker room, 40 by 50 ft., and two stories high. New machinery will be installed. The company is also considering other machinery changes.

Georgia, Elberton. About $15,000 has been expended by the Home Cotton Mills for new pickers, cards, and spinning frames. This company was organized, as reported some time ago, to succeed the Swift's Cotton Mill.

Indiana, Evansville. Minor repairs have been made to the power plant of the Lincoln Cotton Mill Co. This concern manufactures drills and sheetings with 21 to 30 yarn, and has equipment of 16,320 ring spindles and 464 looms. Steam is the motive power.

*Maine, Westbrook. An addition, 64 by 75 ft., 3 stories high, is being built to the dye house of the Dana Warp Mills, and will be completed in November. All machinery and supplies have been bought.

Massachusetts, Chicopee Falls. All the pickers in the Chicopee Mfg. Co. are being equipped with individual motors.

*Massachusetts, Fisherville. Work has been started on the foundation for the new 4-story mill to be erected for the Fisher Mfg. Co.

Massachusetts, Fitchburg. Looms will be installed in the new 4-story addition under construction for the Parkhill Mfg. Co. The building is 340 by 120 ft., and will be completed in October. The number of looms to be installed cannot be stated at the present time.

*Massachusetts, Lawrence. Contract for the addition to the weave shed of the Atlantic Cotton Mills has been awarded to E. A. Peabody & Sons. It will be of brick construction.

Massachusetts, Lowell. Additions are being made to the equipment of the bleaching department of the Tremont & Suffolk Mills. The extent of the increase has not been entirely determined.

Massachusetts, Lowell. The Massachusetts Mills are making additions to their power house and dye house.

Massachusetts, Methuen. Sixteen new Northrop looms are being installed in the plant of the Methuen Co.

Massachusetts, New Bedford. Next week ground will be broken for the new mill to be erected for the Nonquit Spinning Co. As noted recently, the capital stock has been increased from $1,200,000 to $2,400,000. The new mill is in the form of a duplication of the Whitman Mills, which was taken over by Harding, Tilton & Co., on the dissolution of the old firm of Harding, Whitman & Co.

*Massachusetts, New Bedford. Work has been started on the new weave shed and cloth room to be erected for the Whitman Mills at the corner of Davis St. and Riverside Ave. The addition

will occupy the entire block, and will be connected with the main plant by a bridge from the cloth room to No. 2 Mill. The work is being done by The Charles B. Maguire Construction Co., who also have the contract to build an 80-foot addition to No. 1 Mill.

Massachusetts, New Bedford. Contract has been awarded by the new England Cotton Yarn Co. to the B. F. Smith Co. for a large addition to No. 3 Bennett Mill. When completed this addition will have capacity of 70,000 ring spindles and combing machinery, which the Company intends to install. No. 4 Mill of the Bennett group will also be improved, and several thousand old spindles will be replaced by new frames.

*Massachusetts, New Bedford. Frederick B. Macy, treasurer of the Soule Mill, advises that the only enlargement to be made as a result of the recent increase in the capital stock, previously reported, is an addition to the weave room. New looms will be required similar to those now in operation.

*Massachusetts, New Bedford. Contract for the new weave shed to be built for the Gosnold Mills Co. has been awarded to the J. W. Bishop Co. The building will be of brick construction, 400 by 200 ft., 1 story high, with saw-tooth roof.

*Massachusetts, North Adams. A new 1200 h. p. steam engine, which will supply the motive power to the machinery in the additional mill of the Greylock Mills, is being installed.

*Massachusetts, Rockland. A second addition, 50 by 32 ft., is under way for the Rockland Webbing Co. They propose having the same ready for operation September 1.

*Massachusetts, Salem. The new weave shed for the Naumkeag Steam Cotton Co. is approaching completion. One end is closed with wood, and it is stated that another addition will be built in the spring.

Massachusetts, Taunton. Improvements are planned by the New England Cotton Yarn Co. for the Cohannet Mills.

Massachusetts, Thorndike. Another story is to be built on No. 2 Mill of the Thorndike Co. It is understood the equipment is being increased.

*Massachusetts, Waltham. Good progress is being made on the installation of 13,000 ring spindles in the Boston Mfg. Co. This will make the total practically 51,000 spindles, which is an increase of 21,000 spindles in the past three years.

*New Hampshire, Dover. Old No. 4 Mill of the Cocheco Mills has been taken down to the second story. A large new 5-story mill will be erected by the Pacific Mills.

New Hampshire, Somersworth. Work is progressing on the new mill under construction for the Great Falls Mfg. Co., and will be ready for the roof in about a week. The addition to No. 3 Mill is now in full operation.

New Jersey, Passaic. A 3-story addition, 105 by 106 ft., is being built for the Brighton Mills. The new space will be equipped with carding and spinning machinery, which it is expected will be in operation by October 15. 6,120 spindles will be installed, and 20 new looms, making a total of 13,400 ring spindles and 220 looms. Recently the capital stock was increased to $612,000. Wm. Lyall is president; Wm. L. Lyall, treasurer, and T. J. Kelly is superintendent. The plant is operated entirely by steam power.

North Carolina, Bessemer City. The Mascot Cotton Mill Co., who have taken over the old Bessemer City Cotton Mills, will begin manufacturing about September 1, making chambrays, ginghams, and other colored goods. The capital stock is $50,000. C. W. Fuller is president; C. B. Armstrong is treasurer; C. E. Whitney is secretary and buyer, and John F. Scott is superintendent. Nine thousand spindles and 406 looms will be operated. They plan to add a water tower and make further improvements in the dye house.

North Carolina, Charlotte. The directors of the Mecklenburg Mfg. Co. are considering plans for enlarging the plant.

North Carolina, Cherryville. Forty-eight new 40-inch looms are being installed in the Gaston Mfg. Co., and also a new beaming frame.

North Carolina, Gastonia. New machinery has been installed in the Holland Mfg. Co. so that yarns may be delivered in warps. The basement, which has been used for storage, is being prepared for machinery.

North Carolina, Gastonia. The Avon Mills have recently installed additional looms for the purpose of using a portion of the production heretofore sold in yarns. New equipment has also been installed in the carding room, and a number of repairs made on the mill and machinery. The mill continued in operation during these alterations and additions. Manufactured cloths are sold through the Hunter Mfg. & Commission Co., and the yarns through C. E. Riley Co.

North Carolina, Granite Falls. The Dudley Shoals Cotton Mill Co. will install an auxiliary steam plant of 125 h. p., to be used in connection with the hydro-electric.

*North Carolina, Henderson. New machinery is being installed in the Harriet Cotton Mill No. 2. Machinery will be driven by electricity.

North Carolina, Lakewood. It is reported that the Green River Mfg. Co. will add 2,280 spindles and other machinery. They manufacture 6os to 10os single and 2-ply cotton yarns.

North Carolina, Lenoir. An increase from $80,000 to $125,000 will be made in the capital stock of the Moore Cotton Mills Co., and equipment will probably be increased. This is a new concern which plans to operate 6,000 spindles on 24s to 40s yarns. At present 3,400 spindles are operated.

North Carolina, Lexington. Contracts have been closed with the Southern Power Co. for elec-

tricity for the operation of the Dacotah Cotton Mills, Nokomis Cotton Mills, and the Wennonah Cotton Mills. The change will be made as soon as the lines of the power company are completed to Lexington. C. A. Hunt, Jr., has awarded contracts for electrical motors and other equipment. About 2,000 h. p. will be used.

*North Carolina, Monroe. No. 2 mill building of the Icemorlee Cotton Mill Co. is practically ready for machinery. It will be equipped with 5,000 spindles driven by electric power for manufacturing cotton yarns.

*North Carolina, Shelby. Machinery has just been installed in the new mill recently completed for the Shelby Cotton Mills. Details of these enlargements were given last December.

Pennsylvania, Philadelphia. Walker & Stine, manufacturers of textile fabrics at Adams Ave. and Leiper St., Frankford, report that they have recently put in eight new broad looms which brings their equipment up to 56 looms, all of which are running full time and with much business ahead.

Pennsylvania, Philadelphia. The Industrial Mills, Huntingdon and Jasper Sts., have leased another floor in the building in which they are located, and will install ten more tape looms, increasing the capacity.

*Rhode Island, Anthony. Work has been started on the erection of the new 3-story weave shed, 64 by 80 ft., reported in a previous issue to be built for the Coventry Co. They will install 20,000 spindles and from 350 to 500 looms. They propose making only fine white and fancy cotton goods.

Rhode Island, Anthony. It has been decided by the Coventry Co. to build a new 3-story weave shed, 344 by 80 ft., just south of the present mill, and to increase the capacity of the plant by the addition of 20,000 spindles and 420 looms. Contracts have not been given out. Changes include the removal of all the looms now operated to the new weave shed, and the present mill will be devoted wholly to preparatory machinery. They also plan to make only fine white and fancy cotton goods in the future of all combed yarns.

Rhode Island, Lonsdale. A number of old looms in the plant of the Lonsdale Co., which have been used for a number of years, are being discarded, and new looms set up in their places.

Rhode Island, Manville. The weave shed of the Manville Co. of this place is to be enlarged by the erection of an addition 150 by 200 ft. New machinery is to be added. An addition will also be built to the bleachery.

Rhode Island, North Scituate. Improvements in progress at the plant of the North Scituate Cotton Mills include the erection of a new 50,000-gallon water tank, the building of a new engine house, and improvements to the water power.

Rhode Island, Pawtucket. The Slater Mfg. Co. have repaired their old building on Main St., which was abandoned about two years ago, and equipped it with looms and other machinery.

Rhode Island, River Point. Two hundred and seventy new Northrop looms are being installed in the Royal Mills, B. B. & R. Knight, proprietors, to replace old looms, which are being taken out.

*Rhode Island, Warren. The addition to the Warren Mfg. Co.'s mill is nearly completed, and the machinery, which was ordered several weeks ago, has been shipped by the builders.

*South Carolina, Anderson. The Cox Manufacturing Co., recently reported as increasing the capital stock, will install looms for weaving cloth, utilizing the yarn production.

*South Carolina, Calhoun Falls. Operations are being made by the Calhoun Mills to start work on their new addition to be equipped with 10,240 spindles and 250 looms. They contemplate building another addition in the near future.

*South Carolina, Edgefield. It has been noted that the Beaver Dam Mills, recently incorporated to take over the Edgefield Mfg. Co., will double their capacity. They have completed plans for a 2-story building, 80 by 100 ft., which will be erected under the direction of J. E. Sirrine of Greenville, S. C. The equipment is to be increased from 5,000 to 10,000 spindles. B. F. Zimmerman is president and treasurer.

*South Carolina, Goldville. Work is under way on the addition, 100 by 162 ft., for the Banna Manufacturing Co. Contract has also been awarded for operatives' cottages.

South Carolina, Granite Falls. The Dudley Shoals Cotton Mills Co. have completed the installation of an auxiliary steam plant of 125 h. p., which is designed to furnish power when the hydro-electric plant is affected by low water.

*South Carolina, Greenville. The American Spinning Co. has added 11,520 new spindles to the equipment, making a total of 43,000 spindles in the cloth spindle mill, and 9,408 in the yarn mill, nearly all of which are running. The total equipment will be in operation by Sept. 1st.

South Carolina, Greenwood. On August 26 the directors of the Grendel Mills will lay before the stockholders a resolution to increase the capital stock from $350,000 to $500,000 for the purpose of building an additional mill of 10,000 spindles and 250 looms. The new mill will be known as Grendel Mill No. 2. At present 33,152 ring spindles and 784 looms are operated on sheetings and shirtings.

South Carolina, Inman. About 13,000 spindles and 350 looms are being installed in the new mill erected for the Inman Mill. This new equipment will be ready for starting up by the middle of September

*South Carolina, Newberry. Contract for the construction of the addition to the Newberry Cotton Mills has been awarded to the Gallivan Build-

ing Co. of Greenville, S. C. The new structure will be three and four stories high, and 80 by 180 ft., providing space for 10,000 spindles and 300 looms, as announced in June. It is planned to have the enlargement in operation by January 1.

Virginia, Danville. At meetings of the stockholders of the Riverside Cotton Mills and the Dan River Power & Mfg. Co., it was decided to consolidate the two companies. The name of the new company will be The Riverside & Dan River Cotton Mills, which will have paid-in capital of $4,500,000, 6 per cent. preferred stock, and $2,500,000 common stock. R. A. Schoolfield is president, and H. R. Fitzgerald is secretary and treasurer. George W. Robertson is superintendent of the Dan River Power & Mfg. Co., and F. L. Chapman is superintendent of the Riverside Cotton Mills. Additions and improvements costing about $1,000,000 are in progress.

Mills Starting Up.

Connecticut, Vernon. The mill formerly operated by the Ravine Mills Co. has been sold by the First National Bank of Hartford to Paul Ackerly of Brooklyn, formerly of Rockville, Conn., who will start up the mills on cotton warps and twine. It is said the power plant and machinery are in good order, and can be started with very little repairing.

Vermont, North Pownal. The North Pownal Mills, owned and operated by the Arnold Print Works, North Adams, Mass., are being operated in part after a long shutdown.

WOOLEN.

New Mills.

*Massachusetts, Charlton City. The Worcester Wadding Mfg. Co., which has recently taken over the plant formerly run by Akers & Taylor Mfg. Co., will equip the new plant with 4 sets of cards, dye house and drying machines, together with shoddies, pickers and dusters.

*Massachusetts, Franklin. The Torrington Building Co., Torrington, Conn., who have the contract for the erection of buildings for the new Franklin Felt Co., have agreed to complete the work by November 1.

*Oregon, Portland. On August 15 the Multnomah Mohair Mills, a corporation chartered with capital stock of $150,000 several months ago, began construction work on a building in which they plan to install two worsted combs, 2,800 worsted combs, 2,800 worsted spindles (Bradford system), and 100 looms for manufacturing mohair linings. John E. Young is president, treasurer and buyer, and James Coulton is superintendent. A hydro-electric plant will be equipped to supply power. They plan to start with complete dyeing and finishing plant, and propose to sell the product direct. Manufacturing will be started about Jan. 1, 1910. For the next ten days Mr. Young may be addressed at Danielson, Conn.

Pennsylvania, Philadelphia. William Secor, now employed by W. M. Smith at Jasper and York Sts., is arranging for the starting of a plant containing 15 looms for the manufacture of men's wear and dress goods, and to that end has leased floor space in the Davenport Mills at Mascher and York Sts., where he will start up within a few weeks.

Pennsylvania, Philadelphia. Holliday & Zahn have leased the top floor of the Ripka Mills on Main St., Manayunk, in which they are installing machinery for the spinning of fine woolen and merino yarns for knitting purposes from 12 cut up. The plant will contain 4 sets cards and 2,200 spindles. The members of the firm state that they will start their business with enough orders on hand to keep them running full for several months to come. The production will be sold direct. It is also their intention to spin on commission when business of this kind can be secured.

Pennsylvania, Philadelphia. A. J. Gordon has started up the Scotland Mills at the S. W. corner of Mascher and Somerset Sts., under the name of Alfred J. Gordon & Co. Eight narrow looms have been installed, and are being operated on dress goods and men's wear, using 2/20s, 2/30s, 2/40s cotton yarn; and 2/60s, 1/32s, 1/22s and 1/16s worsted yarns. Mr. Gordon was employed until recently by Walker & Stine, Frankford. The plant will be increased to 24 looms as soon as business permits. The product is sold direct.

*Pennsylvania, Philadelphia. The new worsted spinning plant (Bradford system) to be installed by Jos. M. Adams & Co., Main and Dupont Sts., Manayunk, will contain 12 frames, which will be operated on yarns up to 32s. The machinery has been ordered and when delivered will be installed in a section of the mill in which they are now spinning carpet and backing yarns with 21 sets and 3,600 mule spindles.

Enlargements and Improvements.

Connecticut, Moosup. A rearrangement of machinery is being made in the Moosup Mills (American Woolen Co.).

Connecticut, Norwalk. It is reported that worsted spinning machinery will be installed in the local mill of the Salts Textile Mfg. Co. They operate 180 looms on dress goods and men's wear at this place, buying all worsted and cotton yarns.

Connecticut, Putnam. Seventeen looms are being installed in the Putnam Woolen Co., which were formerly operated by the Alpha Mills Co. at Montville. Some of the old looms are being taken out to provide space for additional equipment.

Connecticut, Stafford. The Riverside Co. has recently installed a new double shear in the finishing department, and has placed an order for a new washing machine.

Illinois, Lacon. Work has been started on the foundation of the new dye house, 26 by 50 ft., for the Lacon Woolen Mill. Five new dyeing machines will be added, doubling the present dyeing capacity.

*Maine, Dover. The only changes to be made

at the Brown Mills (American Woolen Co.) are the addition of a dryer and the construction of a 1-story brick building now under way. No other equipment will be needed.

Maine, Oxford. An addition is being built to the finishing room of the Robinson Woolen Co.

Maine, Sabattus. A gang of men has begun work on an addition to be built for the Webster Woolen Co. The addition is to be 2 stories high, 20 by 60 ft., and will be equipped with 6 looms, one set of cards, and one mule.

Maine, Springvale. Three large twisting frames are being installed in the Springvale Spinning Co.'s plant. Other extensive improvements are also being made. It is reported that the company expects to build a large addition in the near future.

*Maine, Wilton. The Wilton Woolen Co. will install 36 looms in the new addition now under way. The town has voted to exempt the company from taxation for ten years.

Mills Starting Up.

*Indiana, Indianapolis. As suggested in an earlier report the new Indianapolis Knitting Co. takes over the plant of the Indianapolis Knitting Mills. They have begun manufacturing.

New Hampshire, Manchester. Operations will soon be started up in the Manchester Stocking Co.'s plant.

*Michigan, Owosso. In July it was reported that John Himmeloerger and William F. Hall, both previously connected with the Michigan Knitting Co., Lansing, Mich., would equip and operate a new knitting mill. They have made arrangements with F. E. Sutfin, reported some time ago as purchasing the Burnett Knitting Co., to take over that plant, and have organized under the style of the Owosso Knitting Co., with F. E. Sutfin, secretary and treasurer; W. F. Hall, superintendent and buyer, and J. H. Himmeloerger, salesman. They will make hosiery, skirts, shawls, sweater coats, gloves and mittens.

Pennsylvania, Mohrsville. The Crown Knitting Mill, which has been closed for a brief vacation, resumed operations on the 16th.

Mills Shutting Down.

Rhode Island, Providence. The Glenark Knitting Co. is going out of business, and is now in process of running out its orders. The affairs of the company will be liquidated, and the plant sold in the near future.

SILK.

New Mills.

Connecticut, Middletown. A new silk mill will be started in the near future by James Miller, who recently sold his interest in the Portland Silk Co. Mr. Miller has not made any definite plans as yet.

*New Jersey, Burlington. The Martin L. Cohn Co., owners of the Burlington Silk Mills, Inc., with a capital of $30,000, Martin L. Cohn, president and treas., T. P. Edwards, sec., and Fred'k Ott, agent and supt., operating 173 broad looms on handkerchiefs, broad dress and tie silks, have recently made arrangements with capitalists in that town whereby they were to erect a new mill to cost in the neighborhood of $50,000. It is also said that Chas. P. Farner, a prominent citizen of the town, donated several acres of ground on which the plant is to be erected, and other citizens have subscribed for about $34,000 worth of bonds of the company.

New Jersey, Paterson. A corporation has been chartered under the style of the Textile Building Co., and will erect a 4-story mill, 468 by 60 ft., with separate engine room, 44 by 75 ft. The buildings are to be completed by January 1, and will be leased by the Henry Doherty Silk Co., who will equip them for manufacturing silk fabrics. The incorporators of the Textile Building Co. are Henry Doherty, Wm. H. Doherty, Henry Doherty, Jr., Raymond Doherty, and Harriet D. Schoonmaker.

*Pennsylvania, Dorrancetown. The Frigerio Silk Throwing Co. is having erected a plant consisting of a main structure, 87 by 205 ft., boiler house, 44 by 39 ft., engine house, 40 by 46 ft., and fire proof vault of concrete construction for raw silk, 20 by 35 ft. The buildings will be equipped with an automatic sprinkler system, and the power equipment will consist of two 150 h. p. boilers and one 300 h. p. engine. The mill will have capacity of 25,0000 spindles, and will give employment to about 225 hands. All the buildings are to be completed by September 1, and the machinery equipment, which will be of the most improved type, will be installed as soon after that date as possible. The new concern are commission silk throwsters of tram, organzine, grenadine, and crepe de chine twist. The capital stock is $125,000. Frank Frigerio, formerly manager and part owner of the White Haven Silk Co. at White Haven, Pa., and of Nanticoke Silk Throwing Co., at Nanticoke, Pa., is general manager.

*Pennsylvania, Easton. Roehlen & Pittenger have installed ten looms, and are manufacturing broad silks and ribbons, giving employment to 600 hands. The plant is operated by electric power, and the product is sold through Schefer, Schramm & Vogel.

*Pennsylvania, Easton. The Girard Silk Mills have capital stock of $15,000, and are operating 10 looms on broad silks and linings. John B. Smith is president, superintendent and buyer; T. F. McPherson is treasurer. The mill is located on Wilkesbarre St., South Side, Easton, Pa. They are interested in all necessary machinery and supplies for increasing their plant.

*Pennsylvania, Macungie. Ground has been broken for the erection of the new mill to be built for the Macungie Silk Co., which will commence its operations in this town.

FAILURES AND SUSPENSIONS.

Massachusetts, Athol. William H. Kauffman, manufacturer of satinets and blankets, has filed a voluntary petition in bankruptcy. The liabilities are $11,500, and the assets $6,741.

*Rhode Island, Pawtucket. Albert H. Chamberlain and Amsden H. Smith have been appointed receivers for the Narragansett Textile Co. They will run out the stock in process. The liabilities are estimated at $140,000.

FIRES.

California, Santa Rosa. Fire practically destroyed the Santa Rosa Woolen Mills, causing loss of $150,000. This company operates 4 sets and 22 looms on flannels and blankets.

Mississippi, Natchez. Fire destroyed the picker room of Mill No. 2 of the Natchez Cotton Mills Co.

New Jersey, Paterson. A loss of about $30,000 has been suffered by the Goldy Ribbon Co. by fire. Insurance $17,000. About $23,000 worth of silk was burned. About three weeks will be required to make repairs.

Pennsylvania, Philadelphia. The building at 5th and Girard Ave., in which the Menders' Institute, a plant for the mending and burling of textile fabrics, patronized by local mills, was recently damaged by fire to the extent of $50,000. The building will be repaired as soon as the insurance is adjusted.

FACTS AND GOSSIP.

Alabama, Selma. The Cawthorn Cotton Mill and the Estelle Cotton Mills were sold at auction by Sheriff J. P. Doherty to E. C. Melvin, president of the Selma National Bank, for $42,934, which is the amount of judgment rendered against the mills and costs. It is reported that Mr. Melvin bid in the property for the original owners, and the mills will now probably resume operations under the old management or by new parties in Atlanta who have been figuring upon purchasing them.

*Connecticut, Bridgeport. Five acres of land have been purchased by the Henkel Lace Co. of Barmen, Germany. A factory will be constructed, and Mr. Max Henkel will have charge.

Connecticut, Killingly. It is rumored that the mill of the Thayer Woolen Co., which is closed and practically all their machinery removed to North Oxford, will be taken over by a concern doing business at Pascoag, R. I.

Connecticut, Middletown. Rogers & Thompson, reported to take over the local plant of the York Silk Mfg. Co., advises us that they are only the lessees of this plant, and have no control whatever of the manufacturing other than determining what is to be made. No new machinery of any kind will be installed.

Connecticut, Middletown. James Miller has sold his interest in the Portland Silk Co. and may establish a new silk mill in Middletown in the near future.

*Connecticut, Middletown. It seems probable that the mill of the York Silk Mfg. Co. at this place will be taken over by other parties and started up. Names of interested parties have not been given, but they are reported to operate a silk mill in Philadelphia.

Connecticut, Montville. The Alpha Mills Co. have sold their woolen mill with water power privileges to Wm. H. Moran of Niagara Falls, N. Y. The property will not be used by Mr. Moran for textile purposes. The machinery is being disposed of as rapidly as possible, so that the new owner can take possession at an early date.

*Connecticut, Moosup. No new equipment will be required for the changes being made in the Moosup Mills (American Woolen Co.). They are simply rearranging the machinery in the carding and spinning departments to better advantage.

Connecticut, Vernon. Paul Ackerly, previously reported as purchasing the property formerly occupied by the Ravine Mills Co., will begin manufacturing just as soon as the town repairs the highway approach to the lower mill. Exactly the same equipment will be operated as was used by the Ravine Mills Co., and the same products will be made.

Delaware, Wilmington. It is reported that a charter has been granted the Standard Woolen Mills Co. N. G. Rosenberg, Worcester, Mass., S. Mayer, New York City, and E. F. Wojan, Brooklyn, are mentioned as interested.

*Georgia, Beverly. Some time ago it was reported that Paul A. Bowden of Thomson, Ga., had purchased the Pearl Cotton Mills. Mr. Bowden is organizing a new corporation, which will be incorporated with capital stock of $200,000 under the style of the Beverly Cotton Mills. They will operate the old Pearl Mills plant on 12s to 26s cotton yarns and cotton rope. Mr. Bowden may be addressed at Thomson, Ga.

Georgia, Crawford. The directors of the Edwards Mill contemplate removing the plant to Athens, where the main office is located. L. F. Edwards, president and general manager, states that the matter has not been finally decided, and he cannot say at the present time what will be done. Five thousand spindles are operated on 8s to 12s cotton yarns in skeins and on cones and tubes.

Georgia, Forsyth. The Ensign Cotton Mill has been incorporated with capital stock of $40,000. The new corporation takes over the business of the Forsyth Mfg. Co., manufacturers of cotton yarns on 6,000 ring and 1,120 twisting spindles.

Personals.

Frederick E. Freeman is now superintendent of the Moore Spinning Company, North Chelmsford, Mass., on the night shift. He was formerly em ployed at the Washington Mills, Lawrence, Mass.

Kirk Verity, assistant superintendent at the Knoxville Woolen Mills, Knoxville, Tenn., has severed his connection with that company.

Thomas Duffy has been appointed overseer of finishing at the Saxonville Mills, Saxonville, Mass., succeeding Wm. E. Chamberlin.

Chas. W. Stevens, superintendent of the Wright Mfg. Company, Lawrence, Mass., has severed his connection with that company and is succeeded by Richard Ward, one of the stockholders.

Robert Burgess, manager of the Burgess Cotton Mill, Pawtucket, R. I., has severed his connection with that concern and will be associated with E. N. Foss in the management of the new cotton mill which is to be built at East Boston, Mass.

S. P. Tempest, overseer of carding at the Osgood Mills, North Andover, Mass., has been transferred to the Marland Mills, same company, to succeed James Woodhouse, who recently resigned.

Hiram Huse, at one time superintendent of the old Lymansville Cotton Mills, Providence, R. I., celebrated the 90th anniversary of his birth at the home of Geo. A. Huse, 687 Public St., that city, recently. Mr. Huse retired from active work some years ago.

W. B. Appleby has accepted the position as overseer of dressing at the Akela Mill, Harrisville, R. I. He comes from Woonsocket, R. I.

H. W. Kimball, general superintendent of the I. E. Palmer Company, Middletown, Conn., has severed his connection with that company.

John Lenehan, overseer of finishing at the National & Providence Worsted Mills, American Woolen Co., Providence, R. I., has severed his connection with that company to accept a similar position at Norwich, Conn.

Edward Barker, treasurer of the Barnaby Mfg. Company, Fall River, Mass., has severed his connection with that company to succeed Wm. McLane, treasurer of the Crystal Spring Bleach & Dye Company.

Fred C. Bigelow, Jr., formerly with the Byfield Woolen Company, Byfield, Mass., has been engaged as master mechanic and millright at the Central Mills Company, Southbridge, Mass.

Frank E. Heyner has been appointed superintendent of the Manetta Mills, Lando, S. C.

A. W. Lockwood has been appointed superintendent of The Beebe-Webber Company, Holyoke, Mass. Mr. Lockwood was formerly superintendent of the National & Providence Worsted Mills, Providence, R. I.

F. W. Mason, traveling representative for the J. O. Draper Company, Pawtucket, R. I., has returned from a pleasant vacation spent at Horse Neck Beach, South Westport, Mass.

George Jackson of the National & Providence Worsted Mills, Providence, R. I., in the worsted department has taken a position with the Elston Mills, same city.

C. T. Booth, overseer of carding at the Madison Woolen Company, Madison, Me., has severed his connection with that company to accept a position as sperintendent of the Union Mfg. Company, Union Point, Ga.

M. H. Shea has accepted a position as overseer of weaving for the Sawyer Regan Co., Dalton, Mass. He comes from Somerville, N. J.

O. Martin has accepted the position in the dressing department for the Madison Woolen Co., Madison, Me. He comes from Harrisville, R. I.

Edward Morin has accepted position as loom fixer for the Devonshire Mill, Goff's Falls, N. H. He comes from Providence, R. I. John L. Ferguson has also accepted the position as loom fixer at this mill. He comes from Holyoke, Mass.

P. J. Shortle has been appointed overseer of finishing for the Knoxville Woolen Mills, Knoxville, Tenn. He comes from Beaver Dam, Wis.

L. L. Sykes, superintendent of the Allen Woolen Mills, Rochester, N. Y., has severed his connection with that company. Mr. Sykes has been in charge of this mill for over two years, but resigned on account of the shock received from losing his son, George, who was killed by an automobile in June.

S. Buckley has accepted the position as overseer of finishing at the Industrial Dyeing & Finishing Works, Philadelphia, Pa. He was formerly employed at the Hulton Dyeing & Finishing Works, same city.

Windfield C. Rogers, designer at the Baltic Mills, Enfield, N. H., has been appointed superintendent of the Allen Woolen Mills, Rochester, N. H., succeeding L. L. Sykes.

H. K. Lloyd has accepted the position of designer at the Monadnock Mills, Claremont, N. H. He formerly held this position some years ago.

Noys D. Chase, overseer of weaving at the Falls Company, Norwich, Conn., has been promoted to the position of assistant superintendent.

N. F. Rourke has accepted the position as overseer of finishing at the Black River Woolen Company, Ludlow, Vt. He comes from Monson, Mass.

Abraham L. Booth has accepted a position in the drawing and spinning departments at the Woonsocket Worsted Mills, Woonsocket, R. I.

Herbert Parker has accepted the position of

overseer of carding at T. F. Mullen & Co., Stafford Springs, Conn. He comes from Bridgeton, Conn.

R. J. Brown has accepted a position as overseer of carding for the Yantic Woolen Co., Yantic, Conn. He comes from Winsted, Conn.

Carl E. Smith has accepted position as loom fixer for the Salts Textile Mfg. Co., Norwalk, Conn. William Brennan of Maynard, Mass., has taken position of cloth instructor for this company.

Peter Costello, Jr., overseer of finishing for the H. T. Murdock Co., Proctorsville, Vt., has severed his connection with that company. The position has been filled by William S. Nason, who comes from North Billerica, Mass.

Charles N. Sumner, paymaster for the past 14 years for the Turners' Falls Cotton Mills, Turners Falls, Mass., has resigned to go into business for himself. He was presented with a beautiful and expensive Knight Templar's watch charm. Mr. Lonegan, overseer of weaving, made the presentation speech. The charm was handed to Mr. Sumner by Guy G. Paris, overseer of carding, who is also a Knight Templar. The help regret very much to lose so good an associate.

John W. Campbell has severed his connection with the Danielson Cotton Company, Danielson, Conn., as second hand in the card room.

D. S. Lovejoy, superintendent of the H. H. Wood Company, Lakeport, N. H., has severed his connection with that company after twenty five years of service. Shortly before the closing hour, the employes gathered in a room and presented Mr. Lovejoy with a diamond pin, Mr. St. Clair of the firm making the presentation speech. Mr. Lovejoy responded in a few well chosen words.

T. W. Biddles has been appointed overseer of finishing for the Yantic Woolen Co., Yantic, Conn. He comes from Potter Hill, R. I.

Chas. Morse, overseer of weaving at the Powhattan Mill, Putnam, Conn., after a continuous service of fifteen years, has severed his connection with that company.

John Bingham, for seven years overseer of carding for the Paul Whiting Mfg. Co., Northbridge, Mass., has severed his connection with that company.

Alma Haigh has been appointed overseer of finishing for the Moosup Mills (American Woolen Co.), Moosup, Conn. He comes from Sherbrook, Quebec, Canada.

Julious Bernhard, designer for the Serenac Mills (American Woolen Company), Blackstone, Mass., has resigned his position.

Francis H. Sawyer, paymaster at the Bigelow Carpet Co., Clinton, Mass., has severed his connection after 42 years of continuous service.

Henry M. McDermott, superintendent for the Brenham Cotton Mills, Brenham, Tex., has secured a position as superintendent of a mill at Atlanta, Ga.

John C. Weeks, overseer of carding at the Camden Woolen Co., Camden, Me., has resigned.

B. L. Harney has been appointed overseer of weaving for the Strathmore Worsted Mills, Concord Junction, Mass. He was overseer at the Mayflower Worsted Mill, North Adams, Mass., until they closed the mill some time ago.

John H. Greenwood, overseer of weaving for the American Yarn Mfg. Co., Pawtucket, R. I. has severed his connection with that company. He held the position over five years. The help in the department presented him with a handsome leather Morris chair.

Chas. D. Tuller will succeed the late Dr. J. D. Turner as president of the Exposition Cotton Mills, Atlanta, Ga., it is reported. Mr. Tuller has been in the service of the Exposition Cotton Mills for the past 25 years, and now acts as their vice-president.

Joseph Hargreaves has been appointed designer for the new mill to be built at New Bedford, Mass., known as the Nashawena Mills Co., and is now getting out samples at the Arlington Mills, Lawrence, Mass., for this mill.

Charles B. Kendall, formerly resident manager of the Donnell Printing Works at Pawtucket, R. I., and later resident manager of the Passaic Printing Works, Passaic, N. J., has been appointed chief chemist at the Clyde Printing Works, River Point, R. I.

J. O. Wilson has been appointed overseer of weaving at the Gonzales Cotton Mills, Texas.

Carl Vetter, superintendent of the Stevens Mills, has been appointed general manager of the mills controlled by the M. T. Stevens Manufacturing Co. The vacancy caused by his advancement has been filled by transferring F. William Clarenbach from the Osgood Mill. Arthur Slater of Pawtucket is the superintendent of the Osgood Mills.

W. T. Whitehead was appointed managing director of the Mount Royal Spinning Company, Montreal, Canada, at a meeting held by the directors recently. J. W. Pyke, vice president, was elected to the position as president. He succeeded the late William C. M'Intyre. B. Tooke was elected vice president.

Louis Drieu, Sr., overseer of the drawing department of the Tunxis Worsted Co., Poquonock, Conn., for the past 25 years, has severed his connection with that company.

A. O. Norris has been appointed superintendent of the Lockmore Mills of Yorkville, South Carolina. He has accepted George K. Tate.

J. T. Cole has accepted a position as overseer of spinning with the Coosa River Spinning Company, Bon Air, Ala.

G. O. Coble has been elected secretary and treasurer of the New Pomona Cotton Manufacturing Company, Greensboro, N. C.

J. D. Farr, who lately resigned his position as superintendent of the Walton Mills, Munroe, Ga., has been appointed as superintendent of the Pearl Cotton Mills, Beverly, Ga.

J. C. Robinson has succeeded D. E. C. Clough as overseer of spinning, spooling and warping at the Paola Cotton Mills, Statesville, N. C.

John M. Falls has accepted a position as overseer of carding at the Fidelity Manufacturing Company, Charlotte, N. C.

J. D. Beiers has been appointed overseer of twisting in the Wadesboro Cotton Mills, Wadesboro, N. C.

Charles A. Amback, superintendent of the Webster Woolen Co., Sabattus, Me., has severed his connection with that company. He has been connected with this firm for the past 38 years. The position will be filled by William Bleakie, who has been agent of the upper mill.

D. M. Meyers has accepted a position as superintendent of the Hannah Pickett Mills, Rockingham, N. C.

Frank Peck, overseer of carding at the Allen Woolen Mills, Rochester, N. Y., and John Francis, overseer of spinning at the same mill, have severed their connection with that company.

Fred Norris, second hand in the weaving department at the Arkwright Mills, Fall River, Mass., has been appointed overseer of weaving at the Wampanoag Mills, same state. Mr. Norris' place at the Arkwright Mills has been filled by Joseph Cox of the Flint Mills.

Dennis Ryan has accepted a position as second hand in the spinning room with the Boston Manufacturing Company, Waltham, Mass. He comes from the Dwight Manufacturing Company, Chicopee, Mass.

J. H. Lawler, overseer of finishing at the Assabet Mills, Maynard, Mass., for the past ten years, has severed his connection with that company and accepted a similar position with the Middlesex Mills, Lowell, Mass.

Louis H. Dean, for the past two years secretary of the boy's department of the Y. M. C. A. of Keene, N. H., has entered the employ of the Faulkner & Colony Mfg. Company, and is intending to learn the woolen business, beginning as clerk in the office.

James Coulton, superintendent of the Bemis Mills, Watertown, Mass., is to sever his connection with that company and has accepted a position as superintendent and general manager of the Multnomah Mills, Portland, Ore. This mill has recently been reorganized and their intention is to put in 100 looms for the manufacture of worsted goods and linings.

John Lynch has been appointed overseer of carding for the Evansville Woolen Mills, Evansville, Ind. He comes from Franklin Falls, N. H.

Edwin Livesey, overseer of the carding department at the Atlantic Mills, Lawrence, Mass., has severed his connection with that company and is to accept the position as superintendent of the Heywood Narrow Fabric Company, Fall River, Mass.

Wm. Matthews, who recently resigned his position as overseer of carding at the Pioneer Mills, Pittsfield, Me., was presented with a fine mission chair by the employes.

Frederick Himes, formerly overseer of weaving at the Beaver Brook Mills, Collinsville, Mass., is meeting with great success in his new enterprise in the manufacture of carpets. He has ordered more looms and the outlook for business in the future is very encouraging.

John Lancaster, overseer of weaving at the Warren Mfg. Company, Warren, R. I., has severed his connection with that company.

Thomas B. Rector has accepted a position as overseer of the finishing and shipping department at the Siluria Cotton Mills, Siluria, Ala. He comes from Greers, S. C.

J. W. Bennett, overseer of spinning at the Cedartown Cotton & Export Company, Cedartown, Ga., has resigned.

C. W. McNealy has accepted a position as overseer of carding and spinning at Fort Mill, S. C.

J. M. Short has been promoted to the position of superintendent of the Cherryville Mfg. Company, Cherryville, N. C. He was formerly employed as overseer of spinning at this mill.

Durant Homlesley has been promoted to the position of overseer of carding at the Cherryville Mfg. Company, Cherryville, N. C. He was formerly second hand at this mill.

Phillip Hofmann has accepted the position as overseer of knitting at the Hedrick Hosiery Mills, Walhalla, S. C.

W. M. Martin has accepted the position as overseer of spinning at the No. 1 Mill of the Cedartown Cotton & Export Company, Cedartown, Ga.

W. H. Ramsey has accepted a position as overseer of spinning, spooling, winding and reeling at the Iceman No. 4 Mill, McColl, S. C.

W. C. Quick, overseer of carding at the Iceman Mills, McColl, S. C., has severed his connection with that company. He has accepted a position with the Icemorlee Mills, Monroe, N. C.

W. E. Stafford, general superintendent of the Manetta Mills, Lando, S. C., has severed his connection with that company.

P. J. Hanlin, overseer of finishing at the Stott Woolen Company, Stottville, N. Y., has been spending a vacation taking in the sights of Buffalo, Niagara Falls and Detroit, Mich.

Frank R. Bean, overseer of finishing at the Faulkner Mfg. Company, North Billerica, Mass., has severed his connection with that company.

Walter Devine has accepted the position as overseer of dyeing at the Locustville Woolen Company, Hope Valley, R. I. He comes from Saugus, Mass.

Dan Furlong, overseer of carding at the Winthrop Mills Company, Winthrop, Me., has severed his connection with that company.

William E. Fischer, boss dyer for the Invincible Dye & Bleach Works, Philadelphia, has severed his connection with that company and returned to the Hussong Dyeing Machine Company, where he is occupying a position as salesman for their machines.

Joseph Schmitz, formerly overseer of dyeing for the Continental Dye Works, Philadelphia, has succeeded W. E. Fischer, occupying the same position, with the Invincible Bleach & Dye Works, in the same city.

DEATHS.

Kommerzienrat Ernst Claes, the founder and sole partner of the firm of Claes & Flentje, Mulhause, died on August 2, age 70 years, after a short illness. He was actively engaged in managing the extensive business of his company up to within a few days of his death. On Aug. 2, 1909, or almost exactly 40 years before the death of Herr Claes, the deceased and Franz Theodor Flentje began the business of repairing sewing machines in Mulhause, after having learned the business in Paris. Herr Claes was business manager and Herr Flentje had charge of the technical part of the business. The manufacture of knitting machinery was soon added to the business and later the manufacture of bicycles. By strict attention to the technical and commercial sides of the enterprise the business has grown until it is now one of the leading establishments of its kind in Germany, employing one thousand operatives. In recognition of his successful and honorable career Herr Claes in 1908 received the title of Royal Prussian Kommerzienrat.

John H. Howe, overseer of weaving at the Mystic Mfg. Company, Mystic, Conn., was found dead on the railroad tracks at Mystic recently. It is supposed he was struck by a night train and killed some time after midnight. He leaves a wife and four children.

Abraham Ashworth, proprietor of the Chadakoen Worsted Company, Jamestown, N. Y., died in Bradford, England, August 6th, at the age of 57 years. He was born in 1852.

Volney Albert Sprague, for many years a prominent and well known resident of Biddeford, Me., yard master and cotton inspector for 29 years for the Pepperell Mfg. Company, died at his summer home at Beachwood. He is survived by two brothers of Meredith, N. H., his wife having died several years ago.

Charles Lyman Carter, who came to Winchendon, Mass., more than fifty years ago and at that time purchased the Parks Mill privilege at Bullardvale and was engaged in the manufacture of horse blankets for several years, died at his home in Winchendon. He was born in Rindge, N. H., August 8, 1829.

Joseph S. Palmer, vice president of the First National Bank and manager of the New York Branch of the Warehouse Point Silk Company, died at his summer home in Warehouse Point, Conn., at the age of 64 years. He leaves a wife and one son.

Urias Hardy, for over 23 years overseer of weaving for the Arlington Mills, Lawrence, Mass., died at his home in Methuen, Mass., very suddenly, Tuesday afternoon, Aug. 3, at the age of 54 years. He was prominent in fraternal organizations and a member of the board of selectmen.

Gilbert H. Turner of the firm of Spencer, Turner & Co., manufacturers of cotton duck and located at 86 West St., New York City, died July 30 of heart disease at the age of 48 years. He was a graduate of Harvard and a member of several New York clubs.

Kelsey M. Gilmore, owner of the Middlesex Bleach, Dye and Finishing Works of Somerville, Mass., died in Norway. He was born in Stamford, Vt., in 1840, was graduated from the schools in Charlestown, Mass. He leaves one son and a daughter.

Christopher P. Brooks, for several years connected with the New Bedford Textile School, died in England, where he had been visiting his people for the past few months, having gone there to try to regain his health. He was born in England April, 1866. He is survived by his wife, who was with him at the time of his death.

Zacharuis Hameetman, president of the Central Silk Finishing Co., Paterson, N. J., died in that city Saturday, July 31. He was a native of Holland, but had resided in Paterson for about 48 years.

George F. Sayles, treasurer of the Adams Woolen Co., Adams, Mass., died suddenly at his home on East St. July 28. He was one of the leading business men of the town and it is due to his efforts during the hard times that the Adams Woolen Co. has been kept running.

James H. Hamilton, superintendent of the Elizabeth Cotton Mills, North Carolina, died at Rock Hill, N. C., after a long illness.

John E. Meader, superintendent of the Gonic Woolen Company, Gonic, N. H., died at his home on Church St., August 5th. He had been superintendent of the Gonic Mills for the past 17 years. He was born in Rochester, Aug. 29, 1850. He is survived by a wife and two sons.

Alexander Barton, a well-known resident of Thompsonville, Conn., and who was employed at the carpet works four years and received injuries to his head and shoulder and since that time has been in failing health, died at his home on South Main St., Tuesday, August 3, at the age of 47 years. He is survived by a widow and two sons.

Charles Fournier was electrocuted in the York Mills, Saco, Me., August 6th. He was employed as a helper in the pipe room and was standing on a water pipe holding a chain fall when his head came in contact with a fuse plug, the plug being knocked out as his head came in contact with the same, and he received a charge of 500 to 600 volts.

New Publications.

[Any work noticed under this head can be obtained through the office of this journal.]

Journal of the Manchester Municipal School of Technology Textile Society, Session 1908-09. Price 50 cents.

This is the imposing title of a new textile journal of which the first issue appeared last month. The reading pages begin with an address of welcome to the new textile society by Mr. J. H. Reynolds of the Manchester School. The other articles are as follows: Communication and Inaugural Address, by Prof. T. W. Fox; Various Twists in Yarn, by J. M. Hey, J. Mutch and J. Smith; The Northrop Loom, by Wm. F. Whittaker; The Effects of Twist upon Yarns, by James Winterbottom; The Conditions of Mill Life in India, by G. N. Dewal; The Conditions of Mill Life in Japan, by S. Yamanobe; Personals; The Ventilation and Humidification of Factories and Workshops, by Prof. Radcliffe.

We welcome the new society and journal and wish both success.

The Grinding and Mounting of Card Clothing; Dronsfield Bros., Ltd., Atlas Works, Oldham, England.

This is a very valuable text book on the grinding and mounting of card clothing. It deals with grinding by the manufacturer of the card clothing and by the user under working conditions, and gives in concise, well-arranged form the results of years of experience in the English trade. The following heads under which the subjects are classified show the scope of this work: Card Grinding Agents, Grinding Cards by the Card Maker, Types of Card Clothing, Grinding Card Fillets, Grinding Card Flats, Card Mounting, Flat Mounting, Card Roll Mounting, Grinding Cards under Working Conditions, Cylinders and Doffers, Flats on the Card, Flats off the Card, Rollers and Clearers, Stripping of Card Flats, Grinding Cloth Napper Rolls, Care of Grinders, All about Emery Filleting.

The book, which is well printed and bound, contains many excellent illustrations of the different types of grinding machines. A copy will be forwarded to any one interested on application. It should be in the possession of every carder and textile manufacturer.

The Operation of Machines for the Production of Cotton Prints (Die Bedienung der Arbeitsmaschinen zur Herstellung bedruckter Baumwollstoffe); by Dr. Wilhelm Elbers; 226 pages, 8 1/2 by 12; Verlag Freidrich Vieweg und Sohn, Braunschweig, Germany. Price $12.

An elaborate book containing many excellent illustrations and forming a striking example of the high class works on technical subjects produced by German authors and publishers. Two brief sections are devoted to cotton spinning and weaving, introducing the reader to the main part dealing with printing. There are also 42 samples of printed fabrics to illustrate the text. It is unquestionably a very valuable work of reference. The text is in German.

Dyeing and Cleaning Textile Fabrics; by F. A. Owen, B. S.; 202 pages, 5 by 7; John Wiley & Sons, New York. Price $2.

This work is based partly on the notes of the late H. C. Standage, whose death occurred while the book was in course of preparation. It was then completed by an American dyer, F. A. Owen. The authors have confined themselves to the practical side of the subject to the exclusion of theory. The book will undoubtedly be a very useful handbook in American dyeing and cleaning establishments.

Business Literature.

Barrett Specification Roofs.

The Barrett Mfg. Co., New York, are issuing a 16-page booklet describing and illustrating their specification roofs. The photographs scattered throughout this booklet show round houses which carry roofs laid along the lines of this specification. The fact that roofs of this character are used so largely on buildings of this kind, where the test is so severe, only serves to emphasize their great desirability for use on manufacturing plants.

Spartan Belting; The Graton & Knight Mfg. Co., Worcester, Mass.

This is an attractive booklet of 16 pages, printed in two colors on good stock, and illustrated with ancient and modern scenes showing the connection between the name and qualities of the belting and the Spartans of old. It shows why the name "Spartan" is appropriate as applied to this company's Spartan Belting and sketches the growth of the company from 1867 with but little capital and small capacity, until now it has a paid up capital of $1,500,000 and a capacity of over 200,000 hides a year.

The booklet contains much instructive information about the qualities and uses of different beltings and tells how Spartan Belting is the result of costly experiments, to secure a belt with its peculiarly meritorious features, requiring the development of special tanning, currying and finishing methods.

The Graton & Knight Mfg. Co. make a special offer to send a Spartan Belt to any responsible manufacturer to be tested sixty days and if not as guaranteed the entire cost and freight, both ways, will be refunded.

The booklet is a credit to both the manufacturers and the Franklin P. Shumway Company, their advertising agents. It tells a lot about belting and should prove interesting to all belt users, who are invited to send them for a copy.

Economizers utilizing the waste heat in chimney flue gases and other furnaces have long been used for preheating boiler feed water and for heating water for industrial purposes. Recently a similar appliance for heating air to be used for drying purposes for heating buildings or for the supply of furnaces has been brought out by The Green Fuel Economizer Company of Matteawan, N. Y.

This apparatus is fully illustrated and described in a 16-page pamphlet entitled, "The Green Patent Waste Heat Air Heater," which this company is now distributing. It is pointed out that as compared with the use of live steam for heating air, the waste heat air heater performs the functions of both boiler and heating coil. That is, it transfers the heat directly from the gases of combustion to the air to be heated. Therefore, assuming the same temperatures of hot gases and air one square foot of heating surface in the air heater does the work of one square foot of boiler surface plus one square foot of heating coil surface. Moreover, by a special new device described in this pamphlet, it has been possible to increase the rate of heat transmission by about 1/3, making this apparatus much more efficient than the ordinary hot-blast stove, to which it is also superior because of the provision of automatic scrapers for keeping the tubes free of soot. It is stated that it is frequently possible to heat the air to temperatures above 600° F. by the use of heat that would otherwise be wasted, thus effecting great economies in fuel as well as in cost of plant, as above pointed out. The Green Fuel Economizer Co. offers to supply copies of this bulletin to interested persons upon request.

Dyer-Robinson Co.

The above is the style of a new partnership recently informed and is a consolidation of the business of E. R. Dyer Co. and Charles A. Robinson. The new company will be located at Sharon, Mass. They are converters and winders of thread and yarns. Under the new arrangement their capacity will be considerably increased, which will enable them to insure satisfactory deliveries to their customers.

Valuable Patent for Sale.

We draw the attention of manufacturers of calender rolls to an advertisement in this issue of the sale of a valuable patent of a new device for making calender roll discs more durable, more uniform and cheaper. This machine is patented in Germany, England and in the United States, the patent in the latter country being now offered for sale. Further information regarding same can be had by applying to this office.

Finishing Compounds.

The manufacture of finishing compounds, sizings, and starches of all kinds for the textile industry has been the specialty of the Arabol Mfg. Co., 100 William St., New York City, for years. Experience and science have helped them to turn out products to suit any particular needs of the trade, and their goods have an enviable reputation. Besides their own manufactures they handle China clay, chloride of magnesium and imported potato starch.

Orders for Cell Driers.

The Cell Drier Machine Co., Taunton, Mass., has recently received the following orders for cell driers: Lancaster Mills, a cell drier for warps; Joseph Bancroft & Sons, a cell drier, repeat order; Acme Paper Machine Co., a cell drier; B. F. Goodrich, a cell drier, repeat order; Rice, Barton & Fales, a cell drier for paper machinery; Converse Rubber Co., a cell drier.

Fuel and Labor Savings of Mechanical Stokers.

Harold V. Coes, in his article on "Smoke Prevention" in the Engineering Magazine for August sums up the economic advantages of the mechanical stoker as follows:

"The direct saving gained by stoker operation over hand-firing is due to two things—saving of fuel due to better combustion, higher boiler efficiencies and smokeless operation, and saving due to decreased labor attendance. This is not so apparent or so great in plants whose boiler capacity is about 1,000 to 2,000 h. p. The cost of boiler-room labor, averaged from plants containing 600 boilers in all, was 50 cents per ton of coal fired, ranging from 26 to 75 cents. The cost gradually decreases as the size of the plant increases, becoming, however, per ton of coal fired, nearly stationary when firing 1,200 tons per week. There is also a correction to be made, depending upon the load factor, the cost of labor per ton being about 10 per cent. less for a steady load than for a variable load."

Continuing Mr. Coes states that: "The principal field which the stoker companies have developed and are developing is that occupied by the central station; though numerous installations have been made in small plants, the central-station work remains as yet the most important.

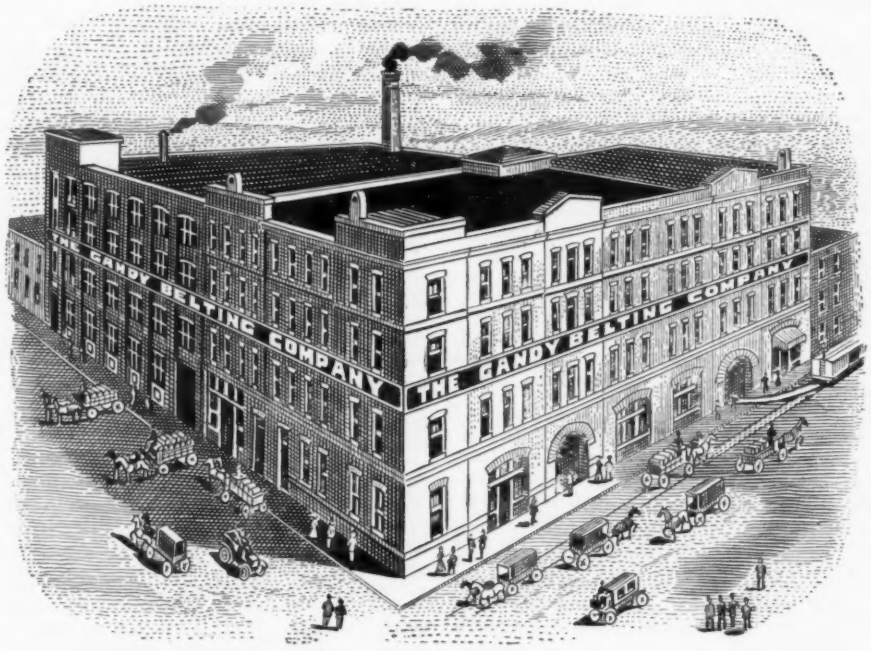
"It is generally recognized at the present time that the art of burning coal and attaining perfect combustion is governed by just as accurate laws and scientific principles as those regulating the generation of steam. The old idea of a fire-brick box crammed full of coal and left to its own devices is antiquated. The modern idea is a furnace designed according to the principles of combustion, perfectly adapted to the kind of fuel to be consumed, to the character of the boiler, and to the nature of the service. It makes no difference what the service is, whether for steamship, railroad, central station, or isolated plant, as long as the designer has in view the requisites of the service and the conditions imposed."

Among the requisites of central station machinery is capacity for overload. Therefore in the selection of a mechanical stoker this feature should be considered. The maximum capacity is obtained in the Taylor stoker manufactured by the American Ship Windlass Co. of Providence, R. I., by using a large number of retorts made possible by dumping the refuse at the rear instead of at the sides of the furnace. This feature of construction combined with the principles of under-

feeding and gravity permits the remarkable overload capacity of 200 per cent. of the builder's rating.

The New Building of the Gandy Belting Company.

With the completion of a large four-story addition, the Gandy Belting Company of Baltimore, Md., now has the largest factory in the world devoted to the manufacture of cotton belting. The modern construction of this addition should be of



interest to our readers. The careful consideration of economy, order and protection should commend itself to all building owners.

The new building has a frontage of 110 feet on Fremont Ave. and 104 feet on King St., four stories. It is of slow burning mill construction, each floor being divided into three bays of a 25 foot span each and one of a 30 foot span, the capacity of each being 300 pounds per square foot, live load. The columns are of Georgia long leaf yellow pine and the floors are four inches thick, made of 3 inch yellow pine plank and 1 inch maple. Three fireproof stairways are provided, also an electric elevator driven by a three phase induction motor. The careful consideration given protection from fire is evidenced in the standard tin covered fire shutters, besides metal window frames and wire glass windows provided on all sides exposed to surrounding buildings.

There is a complete system of plumbing and electrical wiring so arranged that connections and extensions can be made to suit any condition that may arise. This one feature alone is an undoubted source of economy to factory builders. The future savings in repairs compensates many fold for the comparatively small original expenditure. A 30,000 gallon steel water tank which surmounts this building supplies a complete sprinkler system, to which an improved fire pump located in a fireproof compartment is also connected.

A large portion of the floor space is devoted to the specially constructed stretching machinery designed by the Gandy Belting Company. When it is understood that the stretch in canvas belts has heretofore been one of the most serious drawbacks to overcome in their manufacture, the importance of the success of this device used exclusively by the Gandy Belting Company cannot be overestimated by belt users.

This company occupies such a unique position in the belting world that we believe our readers would be interested in a brief history of it. The business was established by Maurice Gandy in 1877 and his invention, the Gandy belt, has now come into extensive use throughout the entire civilized world. Progressive agencies have been established in such far removed points as Yokohama, Japan; Shanghai, China; Cape Town, South Africa, as well as the important cities of most European countries.

The foundation of the Gandy belt is a very heavy duck, woven in the Gandy Company's own duck mill according to the specifications adopted by Mr. Gandy thirty years ago and never since

changed, as exhaustive tests have conclusively proven this peculiar weave of duck best for belting purposes. It has an even strain throughout.

One of the most interesting features found in the Gandy factory is the sewing machines used. These machines were built in the company's own machine shops and have patented features not possessed by any other machines. One of these being that they stitch with an imbedded stitch resulting as is readily seen in an unbroken, smooth surface for the belt and at the same time welding the plies more solidly together.

After stitching, the belt is treated to a secret process which renders it water, heat and steam proof. With these exclusive features, the manufacturers claim they produce the most durable belt on the market for driving, elevating and conveying purposes.

One feature which would prove a valuable asset to any manufacturer who has not yet adopted it is the policy of the Gandy Belting Company to ship all orders the day received. Belt users can best appreciate this who have found the necessity of procuring a belt quickly. For this purpose the Gandy Company carries in stock more than 1,500 rolls of straight roll belting in all sizes from 1 inch 4-ply to 30 inch 10-ply and for the thresher trade alone (in which the Gandy has established an enviable reputation) they carry a stock of more than 5,000 endless thresher belts to be called upon at any time. Their new building was designed, erected and equipped complete by McLaughlin Brothers, engineers and constructors, Baltimore and Philadelphia.

Equivalent to a College.

A student of Sibley College, Cornell University, inquiring as to how much credit he would obtain for shop work done during the vacation, was told that it was the practice to give one hour's credit for every two hours devoted to actual work in a shop or foundry, provided the latter were approved by the faculty as a proper place for gaining useful experience.

Asking if the Yale & Towne Works at Stamford would fit this description, he was informed that double credit would be given for any time spent in these works, as, in the opinion of the faculty, it was the full equivalent of the instruction given at the college, and that in this respect it ranked with a very few of the leading industries of the United States.—Daily Advocate.

The Longest Length of Hose.

The Boston Belting Co. has recently made in one continuous length 1,170 ft. of its Forsyth braided hose. This is the longest continuous length of hose, it is said, which has ever been produced, and is an indication that the Boston Belting Co. is fully equipped to meet the growing demand for long length hose. For years efforts have been made to make hose in such long lengths as this, but it has only recently been achieved.

Direct Current Apparatus.

The Crocker-Wheeler Company has recently booked several large orders for direct current apparatus. One of these from the Indiana Steel Co. calls for 70 mill motors, totaling about 2,400 h. p. This order is an addition to the 11,000 h. p. of Crocker-Wheeler motors employed at the present time by this company. Another order from the Gould Paper Co., of Lyons Falls, N. Y., calls for electric drive for a new paper-making machine which they are about to install. A sale has been made to J. M. Kohler Sons Co., Sheboygan, Wis., of one 750 k. w. 250 volt D. C. generator. The King Bridge Co., Cleveland, O., recently placed an order for one 150 k. w., compound wound, 250 volt generator to be used for supplying light and power. Another sale made to the American Lace Manufacturing Co., Elyria, O., covered one 100 k. w. 250 r. p. m. generator. The Bethlehem Steel Co. has recently added to their 8,800 h. p. of Crocker-Wheeler motors, by an order for a 225 h. p., compound wound motor, to be installed at their Saucon Plant. An order received from Beadleston & Woerz, New York City, covers 187 h. p. in compound wound 115 volt motors and one 150 k. w., 125 volt compound wound generator. Among orders for induction motors recently received by the Crocker-Wheeler Company is one from Roessler & Hasslacher Chemical Co., Perth Amboy, N. J., which totals 295 h. p. in 3 phase, 60 cycle, 480 volt motors of the squirrel cage type.

Announcement.

For the purpose of forming an organization of wider scope and greater strength, Benjamin R. Western and W. Hull Western, until August 1, 1909, respectively proprietor and manager of the Manufacturers' Advertising Bureau, 237 Broadway, New York, and Walter Mueller and W. H. Denney, until August 1, 1909, respectively president and treasurer of The Banning Company, 225 Fifth Avenue, New York, have organized the Manufacturers' Publicity Corporation.

The officers of the corporation are Benjamin R. Western, President; Walter Mueller, Vice President and General Manager; W. H. Denney, Treasurer, and W. Hull Western, Secretary. The offices are located at the Hudson Terminal Bldg., 30 Church St., New York; Telephones, Cortlandt, 475 and 476.

The advertising interests of the clients heretofore directed by the aforementioned will henceforth be in charge of the Manufacturers' Publicity Corporation.

The Draper Field Day.

The employes of the Draper Co., Hopedale, Mass., enjoyed an outing on Saturday, Aug. 4th. Starting at 8.30 o'clock, the sports included running races, lawn tennis, throwing the shot, potato race, pole vault, jumping, bicycle race, potato race for girls, boat racing, swimming races, base ball and a balloon ascension, all of which were thoroughly enjoyed.

Substitute for Sun Light.

The short days that are now rapidly approaching can be lengthened for textile manufacturers by whitening the walls of their mills. It is surprising how much illuminating gas and electricity are saved by keeping the walls and ceilings of the work rooms well whitened. The U. S. Gutta Percha Paint Co., Providence, R. I., manufacture Rice's mill white, which is especially adapted for this purpose, and they invite manufacturers to send for trial gallons which will be supplied free for the purpose of showing the merits of the paint.

A Mutual Relief Association.

The Dodge Mutual Relief Association, an organization of employes of the Dodge Manufacturing Company, Mishawaka, Ind., has just celebrated its twenty-first anniversary. The association was organized July 31, 1889, by the Dodge forces, having for its object the material assistance of members in cases of disability, arising from sickness or accident when sufficient to unfit employes for daily labor. In case of death from any cause a special benefit is paid to the family or heirs.

The membership is divided into two classes: First, those whose weekly earnings exceed $6, for which class the weekly dues are 5 cents and the benefits 80 cents per day, Sundays and holidays excepted; second, those whose earnings are less than $6 per week, for which class the weekly dues are 2 1/2 cents per week, and the daily benefits 40 cents per day. All benefits continue for a period of 13 weeks as a limit for any one term during 12 months dating from the first date of the disability. In the event of death of a member of the first class, $50 is paid; of the second class, $25. Cases of disability are investigated by a visiting committee appointed for each specific case, and reported in writing to the board of directors, which issues the necessary order on the treasurer, when properly approved.

The membership fees are $1 for the first class and 50 cents for the second. The weekly dues may be suspended when the funds on hand amount to $500 and resumed when they reduce to $300. When the amount falls below $200 the directors are required to double the dues until the $300 minimum amount shall be accumulated again.

Charles Endlich, secretary and treasurer of the company, has been the treasurer of the Association since the day it was launched.

The organization has been a splendid means of mutual assistance at Dodge's and workers generally are interested in its welfare.

Turbo-Humidifiers.

The G. M. Parks Co., Fitchburg, Mass., have recently received the contract for equipping five mills at La Grange, Ga., known as the Calloway group of mills, with Turbo-humidifiers. Orders from the South amounting to about one thousand heads have recently been received by this company.

The New 200 Volt Tantalum.

The demand, which recently led the General Electric Company to extend its production of Tungsten lamps into voltages from 200 to 250, also included the other metallic filament lamps.

In response to this demand the company has formally listed and is now producing tantalum lamps adapted for the higher voltages, thus obviating the inconvenience of having to operate two tantalum lamps in series.

These 200 to 250 volt tantalums—50 and 80 watts respectively—have given most excellent results on service tests, their life averaging fully up to that of the regular 100 to 130 volt tantalums of the same efficiency.

They are respectively 2 5/8 and 3 3/4 inches in diameter.

Frank B. Gilbreth.

Mr. George H. Frost, President of the Engineering News Publishing Company, has just placed a contract with Frank B. Gilbreth, 60 Broadway, New York, for the construction of a brick and reinforced concrete building, to be used as a publishing house. This building will be strictly fireproof and modern in every respect. Frederick A. Waldron, 37 Wall St., New York, has been retained as architect and industrial engineer in charge of the mechanical layout of the plant.

A Busy Mill.

The Lafayette Mills Co., Jasper and York Sts., Kensington, makers of turkish towels, etc., report that they are fairly busy. The product is now sold exclusively through James L. Wilson & Co., New York and Philadelphia.

Turbo-Humidifiers.

The G. M. Parks Co. have received contracts for Turbo-Humidifier installations in the plant of the Nonotuck Silk Co., Leeds, Mass., and the Champlain Silk Mills, Brooklyn, N. Y.

Detroit Office.

The Crocker-Wheeler Company, manufacturers and electrical engineers of Ampere, N. J., announce that they have opened an office in the Ford Bldg., Detroit, Mich. Charles W. Cross is manager of this branch.

Johnson & Walker.

Through an oversight the name of Johnson & Walker was omitted from the list of yarn dealers of Providence, Rhode Island. We take pleasure in announcing to the trade that this concern is doing a large business at 528 Banigan Bldg., Providence, Rhode Island. They handle all numbers and descriptions of cotton yarns, and make a specialty of acting as exclusive agents. They would be glad to open a correspondence with mills interested.

Underfeed Stokers.

The Philadelphia Electric Company have decided to use Taylor gravity underfeed stokers exclusively in their Christian Street station, the boilers of which were formerly hand-fired. To this end an order for fourteen seven-retort stokers has been placed with the makers, the American Ship Windlass Co., of Providence, R. I. The stokers on this order are in addition to the two stokers purchased about nine months ago. This company has been investigating various makes of stokers, and has been testing the Taylor in actual service. It is stated that the very low cost of repairs was an important feature.

Hygrosso Humidifiers.

The Banna Mfg. Co., of Goldville, S. C., which is now making improvements and additions whereby they will double their present capacity, have awarded the contract for a humidifying system to John W. Fries, 45 Lafayette St., New York, manufacturer of the Hygrosso. The installation at the above concern will consist of the belt driven Hygrosso in all its departments.

The Aberfoyle Mfg. Co., of Manayunk, Pa., have recently installed the Hygrosso Humidifiers in their weaving department, this installation also consisting of belt driven Hygrosso.

Cotton Yarn Department.

Harding, Tilton & Co., 25 Arch St., Boston, announce to the trade that they have secured the services of William C. Reynolds, formerly of the cotton yarn department of Harding, Whitman & Co., and that Mr. Reynolds will have charge of the selling of cotton yarn in connection with their business.

Sheep Raising.

A special dispatch from Newton, N. J., to the New York Times says that a man thereabouts has sent $12,000 worth of wool to market, shorn from sheep on his Jersey farm. He gives it as his opinion that this sheep raising is more profitable than truck gardening or milk farming. It surely ought to be, for there are two crops—the young lambs and the wool. It is an old saying that the lambs pay costs and the wool is profit and that the wool pays costs and the lambs are profit. In the face of this attractive proposition, it happens that scarcely anybody attempts sheep raising in this part of the country, and those who do as a rule soon give it up.

The common complaint is the vagrant dog. The sheep is seldom so far advanced intellectually as to deserve to be classed as half-witted. It is an out-and-out fool. If the leader of the flock jumps over a sunbeam, the whole flock will follow suit. If one runs, all will run, and it is usually the case that if a dog sees a creature run he will follow. It is in dog nature too, to revert to the wild. Let one get a taste of good, warm, fresh sheep blood, and from then on that is his favorite drink. In desire for another taste he may scare twenty sheep to death before he kills one.

The way to get around this trouble is not to keep a few sheep and apply to the town for damages when a dog goes through the flock, but to keep a lot and to hire a shepherd to protect them. There is a great deal of land in this state now useless that would make fine sheep pasturage. All it wants is intelligence and courage, two qualities that must be got from some other source than the sheep themselves. But the men who buy up the back country for a song and start sheep raising there will make good right here in Connecticut. If incidentally their shepherds shoot a few wandering dogs, no harm will be done to the community.—Hartford (Conn.) Courant.

Water Softening.

The Northern Softener Company have recently closed the following large contracts:

Cedar Rapids & Iowa City Railway & Light Company, Cedar Rapids, Ia., for a 20,000 gallon per hour machine.

Power Construction Company, Galena, Ill., for a 15,000 gallon per hour machine.

Sandusky Portland Cement Company, Sandusky, O., for a 10,000 gallon per hour machine.

Webster City Electric Light & Water Works, Webster City, Ia., for a 2,000 gallon per hour machine.

Los Angeles Paper Manufacturing Company, Los Angeles, Cal., for a 2,000 gallon per hour machine.

The rapidly increasing business of the Northern Water Softening Company is the best testimonial as to the merits of their process.

Trouble Caused by Silk Specks.

Makers and dyers of cloths with a large percentage of shoddy in their composition, have been troubled lately by the appearance of silk specks which are only apparent after dyeing. These particles of white and light colored silk come from old stockings which have had silk clocks, and, after grinding up, it is surprising how far a single clocked stocking will contaminate yards of fabric. The writer was shown a thin brocade cloth with a raised worsted design and a shoddy background. This was dyed a dark green but was spoiled by tiny spots of silk here and there. Cotton specks are easily covered by dyeing in the cold, but silk cannot be covered in this way. Of course shoddy and silk will take up the same dyes, but the silk always shows up a brighter color with more luster and produces a speckled appearance. Unlike cotton, carbonizing is of no use and the only remedy is to reject anything with silk in during the rag sorting.—Dyer and Calico Printer.

George L. Larrabee is now representing the cotton commission house of Albert Rau, New York, in New York State and Philadelphia, with headquarters at the Philadelphia branch, 208 Chestnut St.

Progress.

It seems likely that the decimalizing of cotton prices on the Liverpool Exchange, which was introduced some years ago and has proved excellent in practice, is now to be followed by the decimalizing of cotton weights. In cotton values the fractions of a penny are now counted in hundredths thereof. Why not do the same in regard to weights of cotton (whether in the form of raw material, yarn, or cloth) and in regard to the prices of all three forms of the staple? The expression of one item of weight as so many tons plus so many hundredweights plus quarters plus pounds is not a little preposterous when it might be stated much more easily and quite as accurately in pounds only, and its value in (£ s. and) pence and decimals thereof.

The innovation is now being considered by the trade, and we have little doubt that it will be adopted. At a meeting of the Federation Emergency Committee called for the purpose of discussing a communication from the Cotton Employers' Parliamentary Association, asking if the Federation was in favor of "dropping the use of tons, hundredweights, and quarters, and of expressing all weights of one pound and upwards in terms of pounds only, and of using pence and decimals in place of pence and vulgar fractions in all quotations and charges pertaining to cotton goods," the following resolution was adopted and has been unanimously confirmed by the Federation General Committee today:

"That this Committee approves of the above proposal, and hereby instructs the secretary to ascertain the views of the Federation members on the subject."

In laying the above proposal before its members, the Committee of the Federation state that wherever it has been adopted the change has proved to be of great advantage. Before taking any further steps, however, they desire to have the views of the individual members of the Federation on the question.—Textile Mercury.

Weighting Silk.

The question of framing suitable regulations regarding silk weighting, which has recently received much attention from various branches of the Continental silk trade, has again been the subject of discussion at the general meeting of the Syndicate of German silk manufacturers just held at Dusseldorf. At a previous conference at Frankfort-on-Main, held at the beginning of May, representatives of the various German silk associations outlined a scheme which is now being discussed in greater detail by the individual associations. The Silk Manufacturers' Syndicate are prepared to supply a special range of goods in various qualities from medium upwards, and along with dyers are willing to guarantee such goods for two years. It is stipulated that the yarns used should not be weighted over 35 per cent. in the case of organzines or over 50 per cent. for trames. The Silk Dealers' Association, however, considers the limit too low for organzines, and asks for an all-round allowance of 50 per cent. It has been decided to investigate the matter thoroughly from a practical standpoint, and a number of samples weighted in varying degrees are being prepared and are to be tested under diverse conditions. The result of these trials will be laid before a special committee representing the different societies at the beginning of next September, and it is thought that full and satisfactory arrangements will then be found possible.—Manchester Guardian.

The manufacturers of the Taylor gravity-underfeed stoker report through their New York agents, the Lenher Engineering Co., the sale of fourteen 7-retort stokers to the Philadelphia Electric Co. for their Christian St. station. The sale of these stokers is the direct result of the very satisfactory operation of the two Taylor stokers purchased for trial by this company last January.

Charles Watz has been appointed overseer of carding at the Northern Ohio Blanket Mills, Cleveland, Ohio, succeeding Frank Mencer.

Herbert Parker, overseer of carding at the Forestville Mills, Stafford Springs, Conn., has severed his connection with that company. The position has been filled by Henry Hamel, formerly of Worcester, Mass.

Christopher Adams, overseer of the calender department at the Slatersville Finishing Company, Slatersville, R. I., has resigned and accepted a similar position in a large mill in New Jersey. He is succeeded by his brother Edward.

Jos. Dumas, in charge of the fulling department at the Peace Dale Mfg. Company, Peace Dale, R. I., has severed his connection with that company.

Herbert Palmer has accepted the position as overseer of spinning at the Beaver Dam Woolen Mills, Beaver Dam, Wis.

Frank Mencer, overseer of carding at the Northern Ohio Blanket Mills, Cleveland, O., has severed his connection with that company after ten years of service. He has accepted a similar position with the Ohio Yarn Mills Company, same city.

W. H. Wilcox, overseer of weaving at the Yantic Woolen Company, Yantic, Conn., has severed his connection with that company. He has accepted a similar position with the Iroquois Mill, U. S. Worsted Company, Saugus, Mass.

E. L. Frye has been appointed superintendent of the Bemis Mills, Bemis, Mass. Mr. Frye has worked for this company for a number of years and is well thought of both by the help and treasurer of the concern. He succeeds James Coulton, who has severed his connection with this company.

Charles O. Weeks has accepted the position as overseer of carding at the Schuster Woolen Company, East Douglas, Mass. He was formerly employed at Camden, Me.

Samuel Brown has accepted the position as overseer of drawing at the Star Worsted Company, Fitchburg, Mass. He comes from Lawrence, Mass.

Recent Textile Patents.

COTTON SLIVER CAN. 923,493. John P. Crane, Springfield, Mass.

DYEING, Bleaching and Washing Machine. 929,314. Napoleon Labonty, Woonsocket, R. I.

DYE VAT. 928,891. Paul Thomaschewski, Vohwinkel, Germany.

DYEING YARNS, Fabrics, and the Like. Apparatus for. 929,562. Cesar Corron, St. Chamond, France.

FABRIC. 929,290. Frank J. Crouch, Seattle, Washington.

FABRIC. 928,535. John L. Patterson, Roanoke Rapids, N. C.

FABRICS. Machine for Inserting Diagonal Strands into Woven-cane. 929,345. Joseph Tilp, Hoboken, N. J.

KNITTED FABRIC. 930,180. William H. Horn, Jr., Philadelphia, Pa.

KNITTING-NEEDLES. Machine for Making Spring. 930,978. John Maitland, Cohoes, N. Y.

LOOM. Automatic Weft-replenishing. 930,631. Edward S. Stimpson, Hopedale, Mass.

LOOM Harness Mechanism. 929,802. Edward S. Stimpson, Hopedale, Mass.

LOOM PICKER. 929,352. Charles T. Walker, Leeds, England.

LOOM SHUTTLE. Automatically-threading. 929,817. Arthur W. Beardsekk, Milford, Mass.

LOOM Shuttle Motion. 928,440. Joseph A. Gendron, Nashua, N. H.

LOOM TEMPLE. 929,417. Adam Fortuna, Manchester, N. H.

LOOM. Weft Replenishing. 930,425. Harry W. Smith, North Grafton, Mass.

LOOMS. Change Gear for Mechanical. 930,707. Franz L. Waechtler, Grossenhain, Germany.

LOOMS. Lease-controlled Stop-motion for. 929,811. James M. Yuill, Manchester, N. H.

LOOMS. Magazine for Automatic Weft-replenishing. 930,812. William S. Southwick, Hopedale, Mass.

LOOMS. Needle Mechanism for Cane. 929,346. Joseph Tilp, Hoboken, N. J.

LOOMS. Pattern Mechanism of. 928,278. Oscar L. Owen, Whitinsville, Mass.

LOOMS. Reed-actuating Mechanism for. 928,911. Joseph A. Gendron, Nashua, N. H.

SINGEING MACHINE. 930,116. Thomas Allsop and Walter W. Sibson, Philadelphia, Pa.

SPINNING, Doubling, and the Like. Apparatus for. 930,848. Sebastian Ziani de Ferranti, London, England.

SPINNING or Twisting Machine. 928,830. Wm. P. Wood, Pawtucket, R. I.

SPINNING or Twisting Machine Thread-guide. 929,009. John E. Prest, Melrose, Mass.

TEXTILE FABRIC. 928,642. Joseph G. Elliott, Tuxedo Park, N. Y.

YARN CHANGERS. Controller for. 930,581. Harry H. West, Plymouth, Pa.

Recent Textile Trade-marks Registered.

"R & H." Dress, negligee and work shirts. Rouse, Hempstone & Co., Baltimore, Md.

"Topsy." Hosiery. Ely & Walker Dry Goods Co., St. Louis, Mo.

"Flat Rock Brand." Knitted underwear and hosiery. Hibben, Hollweg & Co., Indianapolis, Ind.

"Nun's." Cotton long-cloth. Dayton Dry Goods Co., Minneapolis, Minn.

"Two-in-One." Ladies' and misses' capes. Jacob Rapoport, New York.

"Quaker Maid." Embroideries. Yound, Smyth, Field Co., Philadelphia, Pa.

"Arrow." Outer shirts of all kinds. Cluett, Peabody & Co., Troy, N. Y.

"Modenna." Broad silk in the piece. Rogers & Thompson, New York.

"750." Ribbons. Gartner, Sons & Co., New York.

"Puritan." Cotton draperies, buntings, etc. F. A. Foster & Co., New York.

"Winner." Men's, women's and children's hosiery. Bertrand J. Hardner, Mount Vernon, N. Y.

"Jolly Clown." Hosiery. E. M. Townsend & Co., New York.

"The Parisian." Hosiery. The Simons & Struve Hosiery Co., Philadelphia, Pa.

"Balmesh." Knit undershirts and drawers. Van Brocklin & Stover Co., Amsterdam, N. Y.

"Palmetto." Jute bagging. The American Mfg. Co., Charleston, W. Va.

"Crown." Jute bagging. The American Mfg. Co., Charleston, W. Va.

"Guayabera Americana." Cotton piece goods. Isidoro Gelbtrunk, New York.

"El Matador." Woven cotton cheviots. Neuss, Hesslein & Co., New York.

"Midinette." Rain coats and skirts for women. Alma Webster Powell, Brooklyn, N. Y.

"Cleopatra." Broad silk in the piece. Rogers & Thompson, West New York, N. J.

"Robespierre." Broad silk in the piece. Rogers & Thompson, West New York, N. J.

Massachusetts, Clinton. The Belle Vue Mills have leased for five years the building formerly occupied by the Pickford Worsted Co., and will use it to take care of their overflow business. Some reports on this matter indicate that the original plant of the Belle Vue Mills will be abandoned, and the equipment moved to the Pickford Mills.

Massachusetts, Fairhaven. Late rumors regarding the building of a cotton mill in Fairhaven give the location as north of the Coggeshall St. bridge, and the time when construction work will be started as this fall. Names of the promoters have not been given.

C. E. RILEY COMPANY

65 Franklin Street, .. BOSTON, MASS.

COTTON AND COTTON GOODS YARNS

DIRECT IMPORTERS OF **EGYPTIAN COTTON**

COTTON WOOLEN WORSTED **MACHINERY**

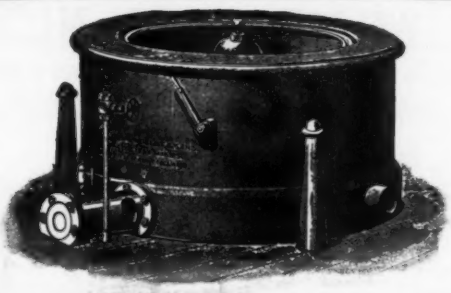
Thomas Broadbent & Sons,

Huddersfield, Eng.

PATENT DIRECT STEAM DRIVEN

HYDRO-EXTRACTORS

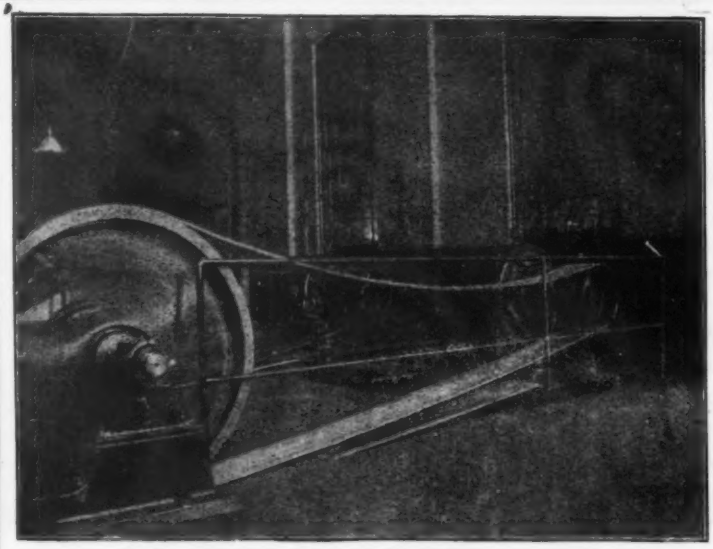
OVER 3500 IN USE. ALSO ELECTRICALLY DRIVEN



SUSPENDED ON LINKS. REQUIRING NO EXPENSIVE FOUNDATIONS

C. E. RILEY COMPANY, Sole Agents 65 Franklin St., Boston, Mass.

Machines Kept in Stock in Boston



Static Electricity In Belts

This belt is an example of the way Cling-Surface will stop generation of static.

It was full of static, running tight and slipping more or less.

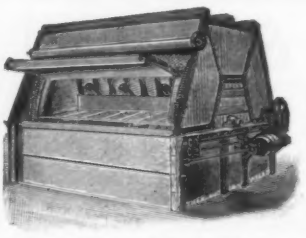
Cling-Surface stopped the slipping so belt could run slack and gave the soft, velvety face which Cling-Surface produces.

Static stopped at once and you note the chains, formerly used for grounding, pushed aside.

Cling-Surface will prevent static in every belt or rope you run, no matter what weather conditions are and we guarantee it. Write us or try at our risk.

CLING-SURFACE COMPANY 1051 Niagara Street BUFFALO N Y

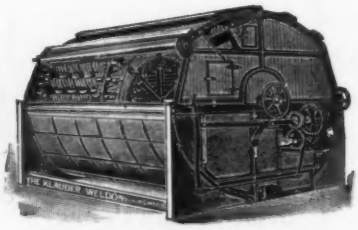
NEW YORK BOSTON ATLANTA MEMPHIS, Etc.



RAW WOOL AND COTTON MACHINE.

MACHINES sold on 2 MONTHS' TRIAL

YOU TAKE NO RISK

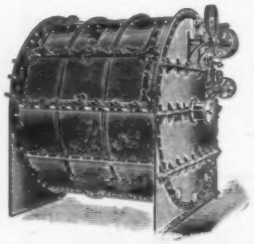


SKEIN AND SLUBBING MACHINE.

THE KLAUDER-WELDON DYEING MACHINE COMPANY

HUDDERSFIELD, ENGLAND. *AMSTERDAM, N. Y.*

Machines for Dyeing, Bleaching and Scouring Woolen, Worsted, Cotton and Silk Skeins—Slubbing—Raw Cotton and Wool, Waste, Rags, Shoddy, Hosiery, Underwear, Hats, Caps, Knit Cloth, Tapes, etc.

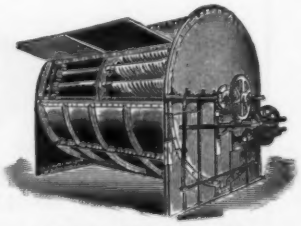


SULPHUR HOSIERY MACHINE.

Special Machines for Sulphur Colors

WILL EARN THEIR COST IN LABOR ALONE IN FROM 6 TO 12 MONTHS ACCORDING TO CAPACITY

Southern Agent, O. A. ROBBINS, Charlotte, N. C.



SULPHUR SKEIN MACHINE.

Buyers' Index

The addresses of builders of mill machinery and dealers in mill supplies, whose names appear in the following classified index, may be found upon referring to their advertisements. The Alphabetical Index to advertisers follows this classified list. Buyers who are unable to find in the classification here given such machinery or supplies as they desire, are invited to communicate with the publishers, who can, in all probability, refer them to proper sources. Advertisers whose names do not appear under desired headings will please notify the publishers. Such omissions are accidental, not intentional.

Accountants.
American Cost Accountant Co.

Air Moistening System.
American Moistening Co.
Bell Pure Air & Cooling Co.
Carrier Air Conditioning Co. of America.
Cramer, Stuart W.
Fries, John W.
Parks, G M., Co.
Schutte & Koerting Co.

Architects and Mill Engineers.
Dean, F. W.
Ferguson, John W.
Cramer, Stuart W.

Asphalt Tanks.
Scaife, W. B., & Sons.

Automatic Feeds for Cotton and Wool.
Kitson Machine Co.
Leigh, Evan A.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Schofield, Wm., Co.
Woonsocket Machine & Press Co.

Bale Ties.
Acme Steel Goods Co.
Reliable Tie Co.

Baling Presses.
Boomer & Boschert Press Co.
Philadelphia Drying Mchy. Co.
Minnich Machine Works.

Bandings.
——See under Yarns.

Baskets.
Lane, W. T., & Bro.

Beams (Steel).
Mossberg, Frank, Co.

Bearing Metals.
Dodge Mfg. Co.

Belting.
Burnham, E. E., Co.
Gandy Belting Co.
Graton & Knight Belting Co.
Rhoades, J. E., & Sons.
Schierin Co., Chas. A.
Shultz Belting Co.
——See also Mill Supplies.

Belt Dressing.
Cling Surface Mfg. Co.
Dixon, Jos., Crucible Co.
Schieren, Chas. A., Co.
Shultz Belting Co.
Stephenson Mfg. Co.

Belt Lacing Machines.
Birdsboro Steel Foundry & Machine Co.
Wackerow, F. C.

Bindings.
——See Tapes and Braids.

Bleaching Kiers.
Arlington Mch. Wks. (Arthur Birch, prop.)
Buhlmann, A. W.
Philadelphia Drying Machinery Co.
Textile Finishing Machinery Co.

Bleaching Materials.
Bosson & Lane.
Carbondale Calcium Co.
Danker & Marston.
Roessler & Hasslacher Chemical Co.
Seydel Mfg. Co., The.

Blowers and Blower Systems.
American Blower Co.
Cameron Machine Co.
Dean Bros. Steam Pump Works.
Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.
Schnitzler, Chas. H.
Sirocco Engineering Co.

Bobbins, Spools, Shuttles, Etc.
American Supply Co.
American Textile Specialty Mchy. Co.
Buhlmann, A. W.
Leigh, Evan A.
Lestershire Spool & Bobbin Co.
Mossberg, Frank, Co.
Speed & Stephenson.
Tebbets, E. L., & Co.
Wilson & Co.

Bobbin Winders.
Lever, Oswald Co.
Universal Winding Co.

Boilers.
——See Steam Boilers.

Boxes, Cloth Boards, Etc.
Pearson, J. T.

Box Strapping.
Acme Steel Goods Co.

Braiding Machinery.
Mason Mfg. Co.
New England Butt Co.
Textile Machine Works.

Braids.
——See Tapes, Braids and Edgings.

Brass Hinges.
Root, C. J., Co.

Bridges.
Scaife, W. B., & Sons.

Brushers.
——See Napping Machines.

Brushes.
Felton, S. A., & Son Co.
Mason Brush Works.

Burr Pickers.
Curtis & Marble Machine Co.
Sargent's, C. G., Sons.
Smith & Furbush Machine Co.

Calico Printers' Machinery and Supplies.
Arlington Mch. Wks. (Arthur Birch, prop.)
Birch Bros., Somerville Machine Wks.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Taunton-New Bedford Copper Co.
Textile Finishing Mchy. Co.
——See also Dyeing, Bleaching, Mahinery, etc.

Canvas Baskets.
Lane, W. T., & Bro.

Cap Spindles.
American Textile Specialty Mchy. Co.
Hall, F. A., & P.
Speed & Stephenson.

Caps.
Calder Machine Works.

Carbonizing Machinery.
Birch Bros., Somerville Machine Wks.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sargent's, C. G., Sons.
Schuchardt & Schutte.
Tolhurst Machine Works.

Card Clothing.
Ashworth Bros.
Buhlmann, A. W.
Crabb, Wm., & Co.
Howard Bros. Mfg. Co.
Leigh, Evan A.
Richards, Atkinson & Haserick.
Riley, C. E., Company.
Speed & Stephenson.

Carded Cotton.
Blaisdell, S., Jr., Company.

Card Feeds.
——See Automatic Feeds.

Card Grinding Machinery.
Dronsfield Bros.
Entwistle, T. C., Co.
Leigh, Evan A.
Riley, C. E., Company.
Smith & Furbush Machine Co.
Richards, Atkinson & Haserick.

Carders' Tools.
Brown, Wm. H., Co.

Carpet Machinery.
Altemus, Jacob K.
Curtis & Marble Machine Co.
Philadelphia Textile Machinery Co.
Smith & Furbush Machine Co.

Castings.
Farrel Foundry and Machine Co.
Schofield, Wm., Co.

Cell Driers.
Cell Drier Machine Co.

Cement Pans.
Scaife, W. B., & Sons.

Chemicals.
Harding, Fancourt & Scull.
Roessler & Hasslacher Chemical Co.

Chemists.
Little, Inc., Arthur D.
McKenna, Dr. Chas. F.

Cling Surface.
Cling Surface Mfg. Co.

Clocks.
Pettes & Randall Co.

Cloth Boards.
Chaffee Bros.
Pearson, J. T.
Richardson Brothers.

Cloth Cutting Machinery.
Adams, A. L.
Cameron Machine Co.

Cloth Expanders.
American Finishing Machinery Co.
Arlington Mch. Wks. (Arthur Birch, prop.)
Leyland, Thomas, & Co.
Textile Finishing Machinery Co.

Cloth Testers.
Scott, Henry L., & Co.

Clutches.
American Tool & Machine Co.
Dodge Mfg. Co.
Hunter, James, Machine Co.
Mossberg Wrench Co.

Coal.
Darrow Mann Co.

Coal Analysis.
Little, Inc., A. D.

Combs (Wool and Cotton).
Hood, R. H., Company.
Jefferon, Edward, & Brother.
Leigh, Evan A.
Philadelphia Textile Machinery Co.
Richards, Atkinson & Haserick.
Riley, C. E., Company.
Speed & Stephenson.
Turner Mfg. Co., J. S.

Condensers.
Dean Bros. Steam Pump Works.

Conditioning of Textile Fabrics.
U. S. Silk Conditioning Works.

Conveying Systems.
Dodge Mfg. Co.
Schnitzler, C. H.
Sturtevant, B. F., Co.

Cop Machinery.
Eppiers, John, Mach. Works.

Cop Tubes.
American Textile Specialty Mchy. Co.
Buhlmann, A. W.
Hall, F. A., & P.
——See Paper Tubes.

Copper Print Rollers.
Taunton-New Bedford Copper Co.

Coppersmiths.
Badger, E. B., & Sons Co.

Copper Work for Dyers.
Badger, E. B., & Sons Co.
Butterworth, H. W., & Sons Co.
Harrington & King Perforating Co.
Textile Finishing Machinery Co.

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Scaife, W. B., & Sons.

Cotton.
Blaisdell, S., Jr., Co.
Charles, W. B.
Riley, C. E., Company.
Schwartz, L. H. A., & Co.

Cotton Machinery.
Altemus, Jacob K.
American Textile Specialty Mchy. Co.
Ashworth Bros.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Cramer, Stuart W.
Crompton & Knowles Loom Works.
Curtis & Marble Machine Co.
Dixon Lubricating Saddle Co.
Draper Company.
Easton-Burnham Co.
Elliott & Hall.
Richards, Atkinson & Haserick.
Entwistle, T. C., Co.
Firth, William, Co.
Haskell-Dawes Machine Co.
Howard & Bullough American Mach. Co.
Kilburn, Lincoln & Co.
Kip-Armstrong Co.
Kitson Machine Co.
Klauder-Weldon Dyeing Machine Co.
Leigh, Evan A.
Lowell Machine Shop.
Mason Machine Works.
Metallic Drawing Roll Co., The.
Palmer, I. E., Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Providence Machine Co.
Richards, Atkinson & Haserick.
Riley, C. E., Company.
Saco & Pettee Machine Shops.
Schofield, Geo. L.
Schwartz, L. H. A., & Co.
Smith & Furbush Machine Co.
Stafford Co., The.
Textile Finishing Machinery Co.
Textile Machinery Co.
Walker Measuring Co.
Whitin Machine Works.
Wildman Mfg. Co.
Woonsocket Machine & Press Co.

Cotton Openers and Lappers.
Howard & Bullough American Mach. Co.
Kitson Machine Co.
Leigh, Evan A.
Richards, Atkinson & Haserick.
Riley, C. E., Company.

Cotton Softeners.
Bosson & Lane.
Burckhardt & Co.
Danker & Marston.
Harding, Fancourt & Scull.
Seydel Mfg. Co., The.

Cotton Waste.
Blaisdell, S., Jr., Co.
Charles, W. B.
Schofield, Edwin F.

Counting Machines.
Root, C. J., & Co.
Schuhardt & Schutte.

Crayons.
Dixon, Jos., Crucible Co.
Lowell Crayon Co.

Creosote.
Carbolineum Wood Preserving Co.

Cutting Machines.
Adams, A. L.
Cameron Machine Co.

Cylinder Oil (Superheated Steam).
Power Specialty Co.

Disinfectants.
Seydel Mfg. Co., The.

Dobbies.
Crompton & Knowles Loom Works.
Kilburn, Lincoln & Co.
Stafford Co., The.

Dobby Chain.
Nuttall, George.

Doupe Cutters.
Cameron Machine Co.

Draughtsmen.
Cameron Machine Co.

Drawing Rolls.
Jefferson, Edward, & Brother.
Hood, R. H., Company.
Metallic Drawing Roll Co., The.
Speed & Stephenson.

Drying Machinery.
American Blower Co.
Arlington Mch. Wks. (Arthur Birch, prop.)
Birch, Arthur, Arlington Mch. Wks.
Birch Bros., Somerville Machine Wks.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Cell Drier Machine Co.
Hunter, Jas., Machine Co.
Jefferson, Edward, & Brother.
Kenyon, D. R., & Son.
Philadelphia Drying Machinery Co.
Sargent's, C. G., Sons.
Schwartz, L. H. A., & Co.
Sturtevant, B. F., Co.
Textile Finishing Machinery Co.
Tolhurst Machine Works.

Drying Boards.
Bull, William C.
Pearson, J. T.
Philadelphia Drying Mchy. Co.

Dusters.
——See Wool and Waste Dusters.

Dust Collectors.
American Blower Co.
Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.

Dyers, Bleachers and Finishers.
Brophy's, T., Sons.
Davidson, J. F.
Firth & Foster Co.
Globe Dye Works Co.
Home Bleach & Dye Works.
Hopkinson Dyeing & Textile Works.
Lorimer's, The Wm. H., & Sons Co.
Pawtucket Dyeing & Bleaching Co.
Peerless Co.
Solway Dyeing & Textile Co.
Utica Willowvale Bleaching Co.
Western Thread & Dye Works.

Dyeing, Drying, Bleaching and Finishing Machinery.
American Blower Co.
American Laundry Mchy. Mfg. Co.
Arlington Mch. Wks. (Arthur Birch, prop.)
Birch, Arthur, Arlington Mch. Wks.
Birch Bros., Somerville Machine Wks.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Cell Drier Machine Co.
Consolidated H. S. and L. M. Co.
Curtis & Marble Machine Co.
Delahunty Dyeing Mach. Co.
Dyeing & Finishing Machine Works.
Entwistle, T. C., Co.
Gessner, David.
Heathcote, John, & Son.
Hopkins Machine Works.
Hunter, James, Machine Co.
Kenyon, D. R., & Son.
Klauder-Weldon Dyeing Machine Co.
Klipstein, A., & Co.
Leigh, Evan A.
Leyland, Thos., & Co.
National Laundry Machinery Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Rodney Hunt Mach. Co.
Schwartz, L. H. A., & Co.
Schuhardt & Schutte.
Smith, Drum & Co.
Sturtevant, B. F., Co. (Drying).
Taylor & Fenn Co.
Textile Finishing Machinery Co.
Tolhurst Machine Works.

Dye House Cans.
Hill, James, Mfg. Co.

Dye House Trucks.
Bailey, Frank.

Dye Sticks.
Bailey, Frank.
Haedrich, E. M.
Klauder-Weldon Dyeing Machine Co.

Dye Tubs.
——See Tanks, Tubs and Vats.

Dyestuffs and Chemicals.
American Dyewood Co.
Arabol Manufacturing Co.
Atteaux, F. E., & Co.
Badische Co.
Berlin Aniline Works.
Bischoff & Co.
Bosson & Lane.
Carbondale Calcium Co.
Cassella Color Co.
Danker & Marston.
Farbenfabriken of Elberfeld Co.
Kalle & Co.
Ford, J. B., Co.
Geisenheimer & Co.
Jamaica Dyewood & Chemical Co.
Johnson, Chas. A., & Co.
Klipstein, A., & Co.
Leyland, Thos., & Co.
Metz, H. A., & Co.
Read Holliday & Sons, Ltd.
Roessler & Hasslacher Chemical Co.
Sykes, Walter F., & Co.
Thayer, Ed. M., & Co.
Young, J. S., & Co., Ltd.

Dynamos.
——See Electric Lighting.

Edgings.
——See Tapes, Braids and Edgings.

Electrical Construction.
Crocker-Wheeler Co.
General Electric Co.
Sturtevant, B. F., Company.
Watson-Flagg Engineering Co.
Westinghouse Electric & Mfg. Co.

Electrical Heating Devices.
Crocker-Wheeler Co.
General Electric Co.

Electric Driven Pumps.
Dean Bros. Steam Pump Works.
General Electric Co.

Electric Fans.
American Blower Co.
Crocker-Wheeler Co.
General Electric Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sturtevant, B. F., Co.
Watson-Flagg Engineering Co.
Westinghouse Electric & Mfg. Co.

Electric Hoists.
Crocker-Wheeler Co.
General Electric Co.

Electric Lighting.
American Blower Co.
Crocker-Wheeler Co.
General Electric Co.
Nernst Lamp Co.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.

Electric Motors.
——See Motors (Electric).

Electrolyzer.
National Laundry Machinery Co.

Elevators.
Economy Engineering Co.
N. Y. Revolving Portable Elevator Co.
Salem Elevator Works.

Embossing Machines.
Cameron Machine Co.

Employees' Time Recorders.
Pettes & Randall Co.

Engines.
——See Steam Engines.

Engine Repairs.
Fishkill Landing Machine Co.

Exhaust Heads.
Sturtevant, B. F., Co.
Power Specialty Co.

Fans—Exhaust and Ventilating.
——See Ventilating Apparatus.

Feed Water Heaters.
Scaife, W. B., & Sons.

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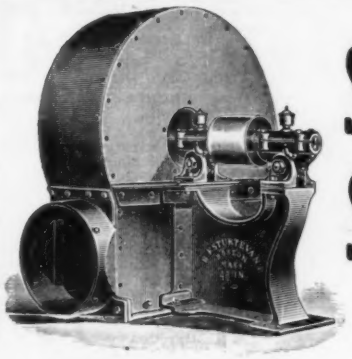


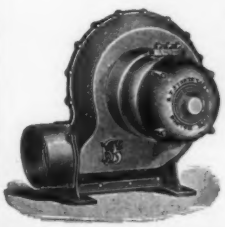
Sturtevant Stock Fans

Are Standardized

Duplicate parts always on hand for immediate shipment.

Nearly every fan use for conveying, ventilating, exhausting, or drying, can be met by one of our stock fans always ready for immediate shipment from our works at Hyde Park, Mass., or from our Philadelphia and Chicago storerooms.

Many of the best mills in the country are equipped with Sturtevant Fans installed by our engineers to meet individual conditions. Our recommendations are not based on guess work, but on the result of years of experience in meeting similar problems. Your requirements can probably be met by one of our stock fans. If not, we build apparatus to order. Correspondence invited.



B. F. Sturtevant Company

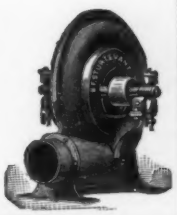
Boston, Mass.

General Office and Works, Hyde Park, Mass.

Builders of

Fans, Fan Systems and Allied Products

(759)



Feed Water Pumps.
Dean Bros. Steam Pump Works.
Goulds Mfg. Co.

Feed Water Purifiers.
Dodge Mfg. Co.
Scaife, W. B., & Sons.

Feeds.
—See Automatic Feeds.

Feed Water Regulators.
Berry Engineering Co.

Felt Hardeners.
Farrel Foundry and Machine Co.

Felting Machinery.
Farrel Foundry and Machine Co.

Fender Boards.
Case Bros.

Filters.
Hungerford & Terry.
Norwood Engineering Co.
Scaife, W. B., & Sons.

Finishing Compounds.
—See Sizings.

Finishing Machinery.
—See Dyeing, Drying, Bleaching and Finishing.

Fire Brick.
Borgner, Cyrus, Co.

Fire Extinguishers.
Badger, E. B., & Sons Co.

Fire Hose.
Eureka Fire Hose Co.

Fire Hydrants.
Norwood Engineering Co.

Fire Insurance.
Home Insurance Co.

Fire Proof Doors and Windows.
Badger, E. B., & Sons Co.

Flax, Tow, Hemp and Jute Machinery.
Fairbairn-Lawson-Combes-Barbour, Ltd.
Haskell-Dawes Machine Co.

Fluted Rolls.
Bates & Robinson Machine Co.
Hood, R. H., Company.
Leigh, Evan A.
Jefferson, Edward & Brother.
Riley, C. E., Company.
Thurston, A. G., & Son.

Flyers.
Bodden, Wm., & Son, Ltd.
Calder Machine Works.
Hall, F. A. & P.
Hopkins Machine Works.
Jefferson, Edward, & Brother.
Leigh, Evan A.
Speed & Stephenson.
Textile Machinery Co.

Fly Wheels.
Dodge Mfg. Co.

Forges.
Sturtevant, B. F., Co.

Friction Clutches.
—See Clutches.

Friction Cones.
Evans Friction Cone Co.

Fuel.
Darrow Mann Co.

Fuel Economizers.
Sturtevant, B. F., Co.

Fulling Mills for Woolen Goods.
Buhlmann, A. W.
Hopkins Machine Works.
Hunter, Jas., Machine Co.
Kenyon, D. R., & Son.
Rodney Hunt Mach. Co.

Furnaces (Automatic Smokeless).
Murphy Iron Works.

Garnetts.
Hunter, James, Machine Co.
Leigh, Evan A.
Smith & Furbush Machine Co.

Gas Blowers and Exhausters.
American Blower Co.
Sturtevant, B. F., Co.

Gaskets (Superheated Steam).
Power Specialty Co.

Gauges.
Crosby Steam Gage & Valve Co.
Walworth Manufacturing Co.

Gears.
Dodge Mfg. Co.
Farrel Foundry and Machine Co.
New Process Raw Hide Co.

Gear Cutting.
Farrel Foundry and Machine Co.

Gear Cutting Machine.
Whiton, The D. E., Co.

Generating Sets.
American Blower Co.
Buffalo Forge Co.
General Electric Co.
Sturtevant, B. F., Co.

Geyser Water Heater.
Sargent's Sons, C. G., Corp.

Greases.
N. Y. & N. J. Lubricant Co.

Harness Twine.
Moore, C., & Co.

Harness and Frames.
Steel Heddle Mfg. Co.
Garland Mfg. Co.

Heating.
—See Ventilating Apparatus.

Heddles.
Howard Bros. Mfg. Co.
Richards, Atkinson & Haserick.
Steel Heddle Mfg. Co.

Hoisting Apparatus.
Economy Engineering Co.

Hosiery Boards.
Pearson, J. T.
Philadelphia Drying Machinery Co.

Hosiery Labels.
Kaumagraph Company.

Humidifying Apparatus.
American Moistening Co.
Bell Pure Air & Cooling Co.
Carrier Air Conditioning Co. of America.
Cramer, Stuart W.
Fries, John W.
Parks, G. M., Co.
Schutte & Koerting Co.

Hydraulic Rams.
Power Specialty Co.
Walworth Mfg. Co.

Hydro Extractors.
American Laundry Mchy. Mfg. Co.
American Tool & Machine Co.
Broadbent, Thomas, & Sons.
Dieneit & Eisenhardt, Inc.
Riley, C. E., Company.
Richards, Atkinson & Haserick.
Schaum & Uhlinger.
Textile Finishing Machinery Co.
Tolhurst Machine Works.

Ice Machines.
Remington Machine Co.

Insulating and Braiding Silks.
Sauquoit Silk Mfg. Co.

Insurance (Casualty, Fire and for Loss of Profits).
Home Insurance Co.

Ironing Machines for Knit Goods.
American Laundry Machinery Mfg. Co.

Jacquards.
Halton's, Thomas, Sons.

Jacquard Cards.
Case Bros., Inc.

Knit Goods, Edgings, Trimmings, Etc.
Chapin, Geo. W.
Charles, W. B.
Cheney Bros.
Friedberger-Aaron Mfg. Co.
Krout & Fite Mfg. Co.
Weimar Bros.

Knit Goods, Finishing Machines Crochet, Etc.
American Laundry Machinery Mfg. Co.
Hoffman, U. S.
Merrow Machine Co., The.
Nye & Tredick Co.
Scott & Williams.
Union Special Machine Co.

Knitting Machine Cylinders.
Paxton & O'Neill.
Stafford & Holt.

Knitting Machinery.
Ainsley Knitting Machine Co.
Boss Knitting Machine Co.
Brinton, H., & Co.
Claes & Flentje.
Climax Machine Co.
Cooper, Chas.
Crane Mfg. Co.
Eppiers, John, Mach. Works.
Excelsior Knitting Machine Mfg. Co.
General Machine Works.
Gormly, Robt. W., & Co.
Grosser Knitting Machine Co.
Hemphill Mfg. Co.
Jenckes, E., Mfg. Co.
Lamb Knitting Mach. Mfg. Co.
Leckie, Jas., & Son.
Leighton Machine Co.
Mayo, Geo. D., Knitting Machine Co.
Mayo Knitting Machine & Needle Co.
National Automatic Knitter Co.
Nye & Tredick Co.
Paxton & O'Neill.
Scott & Williams.
Spindler, E. O.
Stafford & Holt.
Standard Machine Co.
Taylor, James.
Tompkins Bros. Co.
Walther, Otto.
Wildman Mfg. Co.

Knitting Needles and Supplies.
Breedon's, Wm., Sons.
Brinton, H., & Co.
Continental Latch Needle Company.
Cooper, Chas.
Corey, Wm., Co.
Crane Mfg. Co.
Dodge Needle Co.
Excelsior Needle Co.
Grosser Knitting Machine Co.
Ives, L. T., Co.
Lamb Knitting Machine Mfg. Co.
Keystone Latch Needle Co.
Mayo Knitting Machine & Needle Co.
Spindler, E. O.
Wardwell Needle Co.

Labels.
Kimball, A., Co.

Lamps, Electric.
Buckeye Electric Co.
Cooper Hewitt Electric Co.
General Electric Co.
Nernst Lamp Co.
Westinghouse Electric & Mfg. Co.

Lockers.
Williamson, W. S.

Loom Pickers.
Garland Mfg. Co.

Looms.
Crompton & Knowles Loom Works.
Draper Company.
Kilburn, Lincoln & Co.
Leigh, Evan A.
Lowell Machine Shop.
Mason Machine Works.
Richards, Atkinson & Haserick.
Stafford Co., The.
Whitin Machine Works.

Loopers.
Beattie Manufacturing Co.
Hepworth, John W., & Co.
Leighton Machine Co.

Lubricants.
Borne, Scrymser Co.
Dixon, Jos., Crucible Co.
N. Y. & N. J. Lubricant Co.

Lubricators.
The United States Mica Co.
Scholler Bros.
Walworth Mfg. Co.

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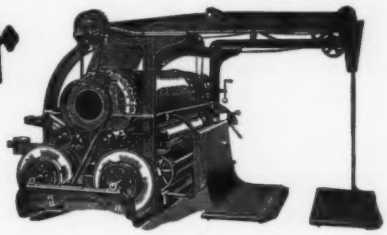
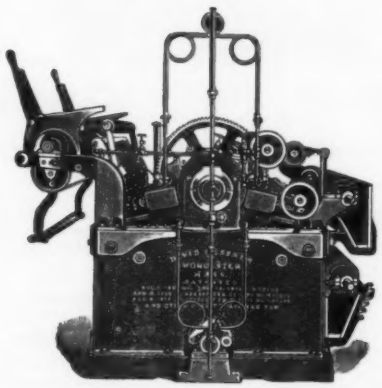
David Gessner

Worcester, Mass.

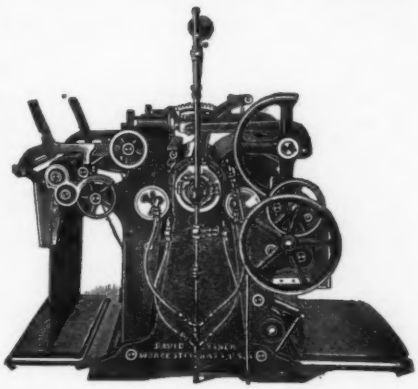




Latest
Improved
Cloth
Finishing
Machinery

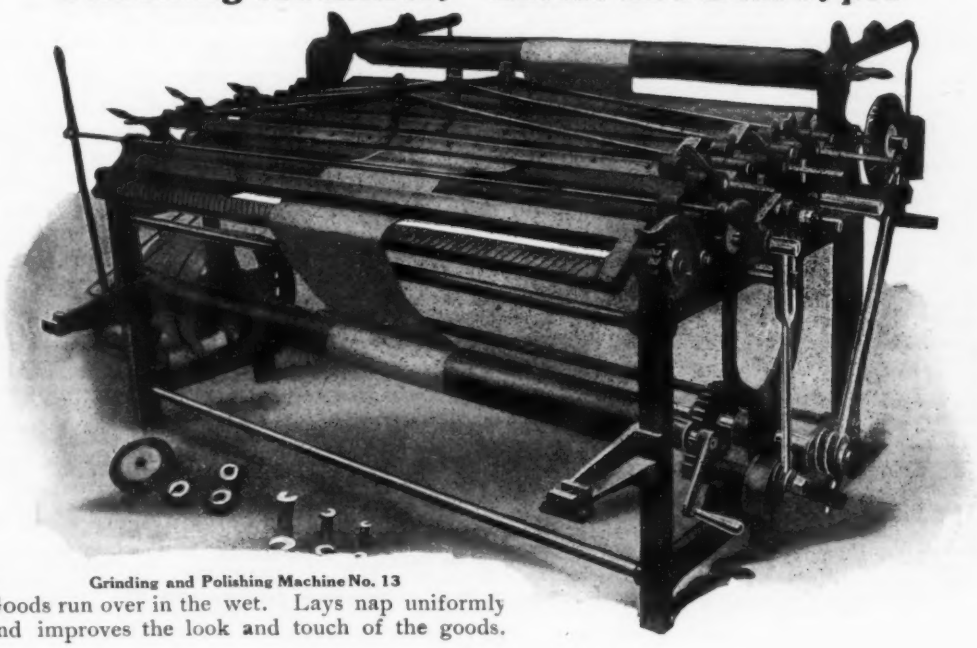
—

Napping
Machines
and
Presses
a
Specialty



Schuchardt & Schutte, 90 West St., New York

Finishing Machinery—Latest and Best Types



Grinding and Polishing Machine No. 13

Goods run over in the wet. Lays nap uniformly and improves the look and touch of the goods.

Lumpers.
Gerry, George, & Son.
Schofield, Wm., Co.

Machine Designers.
Adams, A. L.
Cameron Machine Co.

Machinery Dealers.
Jefferson, Ed., & Bro.
Schofield, Geo. L.
Speed & Stephenson.
Taylor, James.

Machinists.
Adams, A. L.
Calder Machine Works.
Cameron Machine Co.

Machinists' Tools.
Whiton, The D. E., Co.

Mails.
Walder, J.

Marking Pots.
Bradley, A. J.

Marking Tickets.
Kimball, A., Co.

Measuring and Folding Machines.
Curtis & Marble Machine Co.
Elliott & Hall.

Mechanical Draft.
American Blower Co.
Sirocco Engineering Co.
Sturtevant, B. F., Co.

Mechanical Draughtsmen.
Sturtevant, B. F., Co.
Cameron Machine Co.

Mechanical Engineers.
American Blower Co.
Dodge Mfg. Co.
Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.

Mechanical Stokers.
American Ship Windlass Co.
Murphy Iron Works.

Mercerizers.
Globe Dye Works Co.
Home Bleach & Dye Works.
Lorimer, Wm. H., Sons Co.

Mercerizing Machinery.
Buhlmann, A. W.
Butterworth, H. W., & Sons.
Klauder-Weldon Dyeing Machine Co.
Schwartz, L. H. A., & Co.
Smith, Drum & Co.
Textile Finishing Machinery Co.

Metallic Fire-proof Window Frames and Sashes.
Badger, E. B., & Sons Co.

Metallic Packing.
Power Specialty Co.

Mill Architects.
——See Architects and Mill Engineers.

Mill Builders and Engineers.
Ferguson, John W.

Mill Supplies.
American Supply Co.
Bamford & Smith.
Buckley's, Benjamin, Sons.
Burnham, E. E., & Co.
Crabb, Wm., & Co.
Crosby Steam Gage and Valve Co.
Easton-Burnham Co.
Eureka Fire Hose Co.
Garland Mfg. Co.
Jefferson, Ed., & Bro.
Lane, W. T., & Bro.
Leigh, Evan A.
N. Y. & N. J. Lubricant Co.
Philadelphia Drying Machinery Co.
Pratt, R. C.
Riley, C. E., Company.
Richards, Atkinson & Haserick.
Richardson Bros.
Schierin, Chas. A., Co.
Shaw, Victor, Ring Traveler Co.
Speed & Stephenson.
Stephenson Mfg. Co.
Sweet & Doyle.
Thurston, A. G., & Son.
Vandegrift, Elias T.
Walworth Manufacturing Co.

Motors (Electric).
Crocker-Wheeler Co.
Diehl Manufacturing Co.
General Electric Co.
Sturtevant, B. F., Co.
Watson-Flagg Engineering Co.
Westinghouse Electric & Mfg. Co.

Napping Machinery.
Birch Bros., Somerville Machine Wks.
Buhlmann, A. W.
Cocker Machinery Co.
Curtis & Marble Machine Co.
Gessner, David.
Leigh, Evan A.
Parks & Woolson Machine Co.

Noils (Silk).
Ryle, Wm., & Co.

Non-Fluid Oils.
N. Y. & N. J. Lubricant Co.

Oilless Bearings.
Arguto Oilless Bearing Co.

Oil Cups.
Walworth Manufacturing Co.

Oils.
Borne, Scrymser Co.
Burckhardt & Co.
Harding, Fancourt & Scull.
New York & New Jersey Lubricant Co.
Scholler Bros.
Stephenson Mfg. Co.

Oil Stencil and Press Board Paper.
Bradley, A. J.

Overseaming Machines.
Merrow Machine Co.
Singer Sewing Machine Co.

Packings (Metallic).
Power Specialty Co.

Paints.
Brown, Chas. H., Paint Co.
U. S. Gutta Percha Paint Co.

Paints (Wood Preserving).
Carbolineum Co.

Pantagraphs for Mill Engraving.
Johnson, C. A., & Co.

Paper.
Merwin Paper Co.
Richardson Bros.

Paper Boards.
Merwin Paper Co.

Paper and Cloth Slitters.
Cameron Machine Co.

Patent Solicitors.
Crosby & Gregory.
Howson & Howson.

Perforated Metals.
Harrington & King Perforating Co.
Hopkins Machine Works.

Peroxide of Sodium.
Roessler & Hasslacher Chemical Co.

Pipes and Fittings.
Scaife, W. B., & Sons.
Walworth Manufacturing Co.

Pneumatic Conveying.
——See Ventilating.

Portable Elevators.
Economy Engineering Co.
N. Y. Revolving Portable Elevator Co.

Power Transmission Machinery.
Almond, T. W., Mfg. Co.
American Pulley Co.
Cell Drier Machine Co.
Creason, Geo. V., Company.
Dodge Mfg. Co.
Evans, G. Frank.
Farrel Foundry and Machine Co.
Hunter, Jas., Machine Co.
Kilburn, Lincoln & Co.
Oneida Steel Pulley Co.
Philadelphia Drying Machinery Co.
Phillips Pressed Steel Pulley Works.
Reeves Pulley Co.
Saginaw Manufacturing Co.
Schofield, Wm., Co.
Sellers, William, & Co.
Textile Finishing Machinery Co.
Tolhurst Machine Works.

Preparatory Machinery (Cotton).
Howard & Bullough Am. Machine Co.
Kitson Machine Co.
Leigh, Evan A.
Riley, C. E., Company.
Saco & Pettee Machine Shops.

Preservatives.
Carbolineum Wood Preserving Co.

Presses.
Boomer & Boschert Press Co.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Consolidated H. S. and L. M. Co.
Curtis & Marble Machine Co.
Dyeing & Finishing Machine Works.
Gessner, David.
Hart, Charles.
Hoffman, U. S., Co.
Hydraulic Press Mfg. Co.
Minnich Machine Works.
Phila. Drying Machinery Co.
Spence & Rideout.
Textile Finishing Machinery Co.
Woonsocket Machine & Press Co.

Press Boards.
Case Bros., Inc.

Press Papers.
Merwin Paper Co.
Philadelphia Drying Mchy. Co.
Richardson Brothers (Importers and Dealers).

Pressure Regulators.
Crosby Steam Gage & Valve Co.
Walworth Mfg. Co.

Producer Gas Power Plants.
Cameron Machine Co.

Pulleys.
——See Power Transmission Machinery.

Pumps.
Dean Bros. Steam Pump Works.
Goulds Mfg. Co.
Lawrence Pump & Engine Co.
Philadelphia Drying Machinery Co.
Textile Finishing Machinery Co.

Pump Governors.
Crosby Steam Gage & Valve Co.
Dean Bros. Steam Pump Works.
Walworth Mfg. Co.

Purifying & Filtration Plants.
Dodge Mfg. Co.
Hungerford & Terry.
Norwood Engineering Co.
Scaife, W. B., & Sons.

Quillers.
Buhlmann, A. W.
Foster Machine Co.
Payne, G. W., & Co.
Universal Winding Co.

Rag Pickers.
Schofield, Wm., Co.
Smith & Furbush Machine Co.

Raveling Machines.
American Raveler Co.
Arguto Oilless Bearing Co.

Raw Hide Gears.
New Process Raw Hide Co.

Reed and Harness Manufacturers.
American Supply Co.
Nuttall, George.
Walder, J.

Reducing Valves.
Crosby Steam Gage & Valve Co.
Walworth Mfg. Co.

Regulators (Pressure).
Crosby Steam Gage & Valve Co.
Walworth Mfg. Co.

Ribbon Cutters.
Cameron Machine Co.

Ribbons.
Cheney Bros.

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Reflects the Light and is Washable

It reduces artificial light and paint bills. Helps employees do better work and keeps work rooms more sanitary. Can be applied to wood, brick, stone, concrete or metal.

AN OFFER—We will send one gallon Rice's Mill White free to the owner of any mill who will pay the express thereon, and mention this publication.

U. S. Gutta Percha Paint Co.,
Providence, Rhode Island

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We import a most complete and extensive line of **Cotton, Silk, Worsted and Fibre Machinery, Mill Supplies. Egyptian Cotton and Burlaps.** Representing the leading foreign manufacturers and dealers and keep thoroughly

Atkinson

up with the latest improvements in Textile Machines. We should be pleased to communicate with parties contemplating

&

any changes or additions in mill equipments and to send circulars describing at length our machines and supplies.

Haserick

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8 CURRER STREET, BRADFORD, ENG.
PHILADELPHIA OFFICE, THE ARCADE

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Shaw, Victor, Ring Traveler Co.

Roofing.
Barrett Mfg. Co.

Roll Coverers.
Burnham, E. E., & Co.
Turner Mfg. Co., J. S.

Rope.
Dodge Mfg. Co.

Rope Dressing and Preservative.
Cling-Surface Co.

Rope Transmission.
Cresson, Geo. V., Company.
Dodge Mfg. Co.

Roving Cans.
Hill, James, Mfg. Co.
Standard Fibre Co.

Roving Reels.
Scott, Henry L., & Co.

Sash Cord Braiders.
Mason Mfg. Co.

Scallop Machines.
Merrow Machine Co.

Schools.
American School of Correspondence.
International Correspondence Schools.
Lowell Textile School.
New Bedford Textile School.
Philadelphia Textile School.

Screens (Perforated Metal).
Harrington & King Perforating Co.

Secondhand Machinery.
—See Mchry. Dealers, also classified Ads.

Separators (Yarn).
Draper Co., The.

Sewing Machines and Supplies.
American Raveler Co.
Arlington Mch. Wks. (Arthur Birch, prop.)
Birch Bros., Somerville Machine Wks.
Curtis & Marble Machine Co.
Dinsmore Mfg. Co.
Fales, L. F.
Singer Sewing Machine Co.
Textile Finishing Machinery Co.
Tillinghast Sewing Mach. & Supply Co.
Union Special Machine Co.

Shafting, Hangers, Etc.
—See Power Transmission Machinery.

Shearing Machinery.
—See Dyeing, Drying, Bleaching and Finishing.

Sheet Metal Work.
Scaife, W. B., & Sons.

Shell Rolls.
Thurston, A. G., & Son.

Shoddies.
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Shuttles.
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Silk Machinery.
Arlington Mch. Wks. (Arthur Birch, prop.)
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Mason Machine Works.
Richards, Atkinson & Haserick.
Textile Finishing Machinery Co.

Silk Mill Supplies.
Hall, I. A., & Co.

Silk Noils.
Fawcett, Hughes.

Singe Plates.
Butterworth, H. W., Sons Co.
Taunton, New Bedford Copper Co.
Textile Finishing Machinery Co.

Singeing Machines.
Butterworth, H. W., Sons Co.
Curtis & Marble Machine Co.
Dyeing & Finishing Machine Works.
Societe Anonyme Electro-Textile.
Leigh, Evan A.
Philadelphia Drying Machinery Co.
Smith, Drum & Co.
Textile Finishing Machinery Co.

Sizing, Starch and Gums.
American Diamalt Co.
Arabol Mfg. Co.
Corn Products Refining Co.
Danker & Marston.
Scholler Bros.
Seydel Mfg. Co., The.

Skylights.
Drouve, G., & Co.
Van Noorden, E., Co.

Slashers.
Leigh, Evan A.
Lowell Machine Shop.
Riley, C. E., Company.

Soaps.
Dobbins Soap Mfg. Co.
Seydel Mfg. Co., The.

Special Machine Designers.
Cameron Machine Co.

Spindles.
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Bodden, Wm. & Son, Ltd.
Buckley's, Benjamin, Sons.
Calder Machine Works.
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Easton-Burnham Co.
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Hopkins Machine Works.
Jefferson, Edward & Brother.
Leigh, Evan A.
Riley, C. E., Company.
Richards, Atkinson & Haserick.
Vandegrift, Elias T.

Spindle Tubes.
Bamford & Smith.
Calder Machine Works.
Riley, C. E., Company.
Richards, Atkinson & Haserick.
Vandegrift, Elias T.

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Dixon Lubricating Saddle Co.

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Howard & Bullough American Machine Co.
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Hall, F. A. & P.
Jefferson, Edward & Brother.

Spools.
—See Bobbins, Spools, Shuttles, Etc.

Spoolers.
Draper Company.
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Hall, F. A. & P.
Lindsay, Hyde & Co.
Lowell Machine Shop.
Payne, George W., & Co.

Stacks.
Scaife, W. B., & Sons.

Staple Stitcher.
Chas. Beck Paper Co.

Steam Boilers.
Scaife, W. B., & Sons.

Steam Engines.
American Blower Co.
Fishkill Landing Machine Co.
Providence Engineering Works.
Sturtevant, B. F., Co.
Textile Finishing Machinery Co.

Steam Heating.
American Blower Co.

Steam Jacket Kettles.
Badger, E. B., & Sons Co.

Steam Pumps.
Dean Bros. Steam Pump Works.
Goulds Manufacturing Co., The.
Walworth Mfg. Co.

Steam Specialties.
Berry Engineering Co.
Butterworth, H. W., Sons Co.
Crosby Steam Gage & Valve Co.
Sargent's Sons, C. G., Corp.
Sturtevant, B. F., Co.
Textile Finishing Machinery Co.
Walworth Manufacturing Co.

Steam Traps.
American Blower Co.
Sturtevant, B. F., Co.
Walworth Mfg. Co.

Steam Turbines.
General Electric Co.

Steel Frame Construction.
Scaife, W. B., & Sons.

Steel Surfacing.
Harrington & King Perforating Co.

Stencil Machines.
Bradley, A. J.

Stokers (Automatic).
American Ship Windlass Co.

Stop Motion for Knitting Machines.
Boss Knitting Machine Works.

Stop Motion for Looms.
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Superheaters, Foster.
Power Specialty Co.

Tags.
Kimball, A., Co.

Tanks, Tubs and Vats.
Cypress Lumber Co.
Hall, Amos H., Son & Co.
Hopkins Machine Works.
Klauder-Weldon Dyeing Machine Co.
New England Tank & Tower Co.
Textile Finishing Machinery Co.
Tolhurst Machine Works.
Scaife, W. B., & Sons.
Stearns, A. T., Lumber Co.
Woolford, G., Tank Mfg. Co.

Tapes, Braids and Edgings.
Barton, F. C.
Beacon Narrow Fabric Co.
Bias Narrow Fabric Co.
Chapin, George W.
Friedberger-Aaron Mfg. Co.
Industrial Mills Co.
Krout & Fite Mfg. Co.
Maurer, F. W., & Sons Co.
Weimar Bros.

Telephones.
Pettes & Randall Co.

Temples.
Draper Co.

Textile Schools.
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Thread Guide.
Palmer, I. E., Co.

Tiering Machines.
Economy Engineering Co.

Top Cutting Machines.
Wildman Mfg. Co.

Trimming Machines.
American Raveler Co.

Trade Mark Stamps.
Kaumagraph Co.

Trucks.
Bailey, Frank.

Turbines.
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Turning Points.
Dickinson, T. L.

Twine.
Moore, C., & Co.
Richardson Bros.

Twist Counters.
Scott, Henry L., & Co.

Twisting Machinery.
Jefferson, Edward & Brother.
Lowell Machine Shop.
Smith & Furbush Machine Co.

Valves.
Crosby Steam Gage & Valve Co.
Jolly, J. & W.
Walworth Mfg. Co.

Variable Speed Transmission.
Cell Drier Machine Co.
Reeves Pulley Co.

Ventilating Apparatus.
American Blower Co.
American Moistening Co.
Berry, A Hun.
Carrier Air Conditioning Co. of America.
Crocker-Wheeler Co.
Drouve, G., & Co.
General Electric Co.
Parks, G. M., Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Tolhurst Machine Works.
Sargent's, C. G., Sons.
Schnitzler, Chas. H.
Schutte & Koerting Co.
Sirocco Engineering Co.
Sturtevant, B. F., Co.
Walworth Mfg. Co.

Warp Beams (Steel).
Mossberg, Frank, Co.

Warp Beam Head.
Sands Mfg. Co., T. J.

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Walker Measuring Co.

Warpers.
Draper Company.
Entwistle, T. C., Co.
Lowell Machine Shop.

Warping and Beaming Machinery.
Altemus, J. K.
Cocker Machinery Co.
Draper Company.
Entwistle, T. C., Co.
Oswald Lever Co.
Smith & Furbush Machine Co.

Warp Stop Motions.
American Textile Appliances Co.
Draper Company.
Kip-Armstrong Co.

Warp Tension Regulator.
Sands Mfg. Co., T. J.

Washers (Cloth).
American Laundry Mchy. Mfg. Co.
Arlington Mch. Works (Arthur Birch, prop.)
Birch, Arthur, Arlington Mch. Works.
Birch Bros., Somerville Machine Wks.
Butterworth, H. W., & Sons Co.
Hunt, Rodney, & Co.
Hunter, Jas., Machine Co.
Kenyon, D. R., & Son.
Philadelphia Drying Machinery Co.
Textile Finishing Machinery Co.

Washing Soda.
Ford, J. B., Co.

Watchman's Clocks.
Pettes & Randall Co.

Water Chemists.
Scaife, W. B., & Sons Co.

Water Purifiers and Filters.
Dodge Mfg. Co.
Hungerford & Terry.
Northern Water Softening Co.
Scaife, W. B., & Sons Co.

Water Softeners.
Dodge Mfg. Co.
Ford, J. B., Co.
Hungerford & Terry.
Northern Water Softening Co.
Scaife, W. B., & Sons Co.

Water Towers.
New England Tank & Tower Co.
Tippett & Wood.

Water Wheel Governors.
Woodward Governor Co.

Water Wheel Harness.
Dodge Mfg. Co.

Water Wheels.
Rodney Hunt Machine Co.
Smith, S. Morgan, Co.

Winders (Cotton, Woolen and Worsted).
Allen, A. W.
Altemus, J. K.
Easton & Burnham Machine Co.
Foster Machine Co.
Johnson & Bassett.
Leigh, Evan A.
Lever, Oswald, Co
Lindsay, Hyde & Co.
Lowell Machine Shop
Payne, Geo. W., & Co.
Universal Winding Co.

Winders (Back).
Taylor, James.

Winders (Hosiery).
Altemus, Jacob K.
Easton & Burnham Machine Co.
Foster Machine Co.
Leighton Machine Co.
Lowell Machine Shop.
Payne, G. W., & Co.
Universal Winding Co.

Wood Preserving Paints.
Carbolineum Co.

Wood Pulleys.
Dodge Mfg. Co.
Saginaw Manufacturing Co.

Wool.
Richards, Atkinson & Haserick.
Schofield, Edwin F.

Wool Cleaning Compound.
Ford, J. B., Co.

Wool Combing Machinery.
Crompton & Knowles Loom Works.
Jefferson, Edward & Brother.
Leigh, Evan A.
Richards, Atkinson & Haserick.
Riley, C. E., Company.

Wool Oil Compound.
Burckhardt & Co.
Danker & Marston.

Wool and Waste Dusters.
Jefferson, Edward & Brother.
Leigh, Evan A.
Sargent's, C. G., Sons.
Schofield, Wm., Co.
Smith & Furbush Machine Co.

Woolen and Worsted Machinery.
Altemus, Jacob K
American Tool & Machine Co.

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F. W. DEAN
Mill Engineer and Architect
Wm. W. Crosby
Special Textile Assistant

Designer of Textile and other mills, Water Power Plants, Steam and Electric Plants.
Expert Service in Valuations and Damage Suits.

Exchange Building
53 State Street,
Boston, Mass.

Arlington Mch. Works (Arthur Birch, prop.)
Birch, Arthur, Arlington Mch. Works.
Birch Bros., Somerville Machine Wks.
Buhlmann, A. W.
Butterworth, H. W., Sons Co.
Crompton & Knowles Loom Works.
Curtis & Marble Machine Co.
Fales, L. F.
Firth, William, Co.
Gessner, David.
Hood, R. H., Company.
Hunter, Jas., Machine Co.
Jefferson, Ed., & Bro.
Johnson & Bassett.
Kenyon, D. R., & Son.
Klauder-Weldon Dyeing Machine Co.
Leigh, Evan A.
Lombard Machine Co.
Lowell Machine Shop.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Riley, C. E., Company.
Rodney Hunt Mach. Co.
Sargent's, C. G., Sons.
Schofield, Geo. L.
Schofield, William, Co.
Smith & Furbush Machine Co.
Speed & Stephenson.
Richards, Atkinson & Haserick.
Textile Finishing Machinery Co.
Tolhurst Machine Works.
Whittle, James H., Co.
Woonsocket Machine & Press Co.

Wool Oils.
Borne, Scrymser Co.

Wool Shoddies.
Slack, Wm. H. H., & Bro.

Wool Washing, Preparing and Drying Machinery.
Hunter, Jas., Machine Co.
Jefferson, Edward, & Brother.
Leigh, Evan A.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Riley, C. E., Company.
Sargent's, C. G., Sons.
Smith & Furbush Machine Co.
Speed & Stephenson.
Richards, Atkinson & Haserick.
Tolhurst Machine Works.

Yarn Testers.
Buhlmann, A. W.
Scott, Henry L., & Co.

YARNS, THREADS, ETC.

Banding.
Sternberg, Fred, & Co.

Cotton Yarns.
Ballou Yarn Co.
Catlin & Co.
Chapin, Geo. W.
Charles, W. B.
Cone, T. H. S.
Crabb, Wm., & Co.
Devlin, Edward.
Eddy & Street.
Germania Dye Works.
Grant Yarn Co.
Greene & Daniels Mfg. Co.
Jenckes Spinning Co.
Johnson & Walker.
Littauer, Ludwig.
Mitchell, Jas. E., & Co.
Montgomery, J. R., Co.
Monument Mills.
Orswell Mills.
Salkeld, A. D., & Bro.
Sternberg, Fred, & Co.
Whitman, William, & Co.

Flax, Hemp, Jute and Ramie.
Duncan & Youngs.
Fawcett, Hughes.
Littauer, Ludwig.
Sternberg, Fred, & Co.

Gassed Yarns.
Ballou Yarn Co.
Greene & Daniels Mfg. Co.
Littauer, Ludwig.
Lorimer, E. D.
Queensbury Mills.
Sternberg, Fred, & Co.
Whitman, William, & Co.

Glazed Yarns.
Ballou Yarn Co.
Chapin, Geo. W.
Littauer, Ludwig.
Lorimer's, Wm. H., & Sons Co.
Orswell Mills.
Salkeld, A. D., & Bro.
Sternberg, Fred, & Co.
Whitman, William, & Co.

Harness Twine.
Ballou Yarn Co.
Fawcett, Hughes.
Moore, C., & Co.
Sternberg, Fred, & Co.

Hosiery and Knitting Yarns.
Boyer, B. F., Co.
Century Cotton Mills.
Chapin, George W.
Greene & Daniels Mfg. Co.
Hyde, E. S.
Littauer, Ludwig.
Jenckes Spinning Co.
Mitchell, James E., & Co.
Monument Mills.
Salkeld, A. D., & Bro.
Sternberg, Fred, & Co.
Whitman, William, & Co.

Mercerized Yarns.
Littauer, Ludwig.
Lorimer, E. D., & Co.
Montgomery, J. R., & Co.
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Sternberg, Fred, & Co.
Whitman, William, & Co.

Mohair Yarns.
Littauer, Ludwig.
Montgomery, J. R., & Co.
Whitman, William, & Co.

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Littauer, Ludwig.
Montgomery, J. R., & Co.
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Sternberg, Fred, & Co.

Silk Yarns.
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Ryle, Wm., & Co.
Sauquoit Silk Mfg. Co.

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Eddy & Street.
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Littauer, Ludwig.

Worsted Yarns.
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Whitman, William, & Co.

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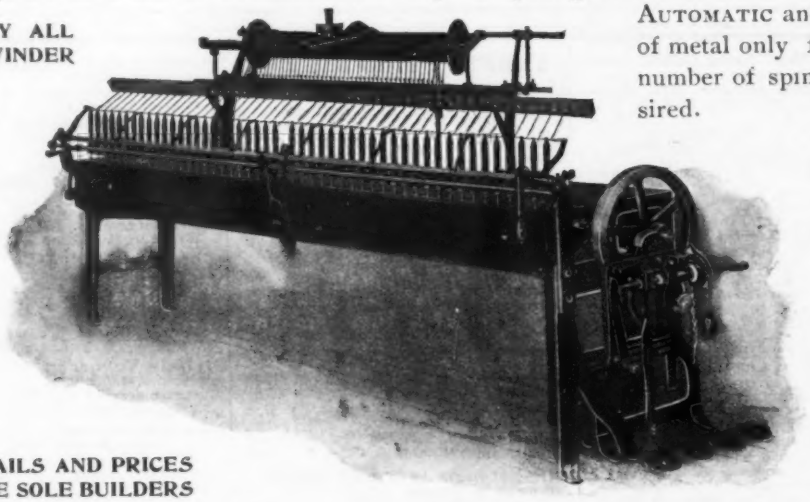
THE AUTOMATIC LOOM BEAM HEAD
can be tightened so as to hold itself in place without collars, set-screws or blocks nailed on the beam. It will tighten on beam and comes true in circle. Listing cannot get between the beam and head. Practically a one-piece head made strong and will outlast any beam head made, with the same usage. Can be set in one minute and stays when it is set. Put on without taking the beam apart. A set of beam heads sent to any factory in the U. S. upon application with thirty days approval. In ordering send diameter of beam and diameter of head wanted.
The T. J. Sands Mfg. Co., - Winsooski, Vt.

"The Most Efficient Bobbin Winder Made"

That is a strong assertion—but it is backed up by our guarantee of greater production per spindle than can be obtained from any competing machine. It is ENTIRELY AUTOMATIC and is built of metal only for any number of spindles desired.

THE ONLY ALL METAL WINDER ON THE MARKET



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Pointed Staple Label Wire Stitcher

The only perfect method of attaching brand labels to stockings, or price and size tickets to all woven and knitted fabrics.

Uses an extremely fine wire giving a neat appearance.

Makes its own staples from a spool of wire costing a fraction of a cent per thousand.

The long, fine points penetrate the finest material without injury.

Turns the points back into the material leaving no roughness to catch or scratch.

Machines built for either foot or belt power.

Send samples of your work to be stitched, we will pay transportation both ways.

Chas. Beck Paper Co., Ltd.

609 Chestnut Street, Phila., Pa.

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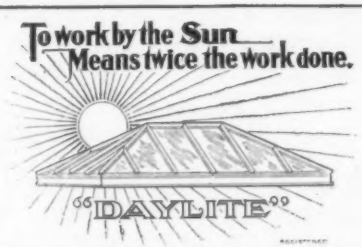

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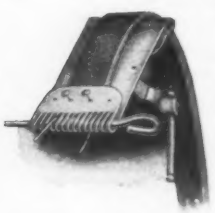

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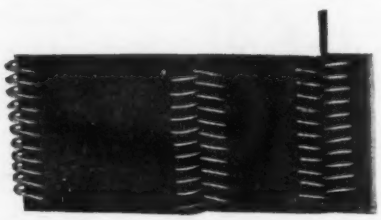

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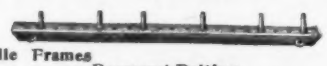

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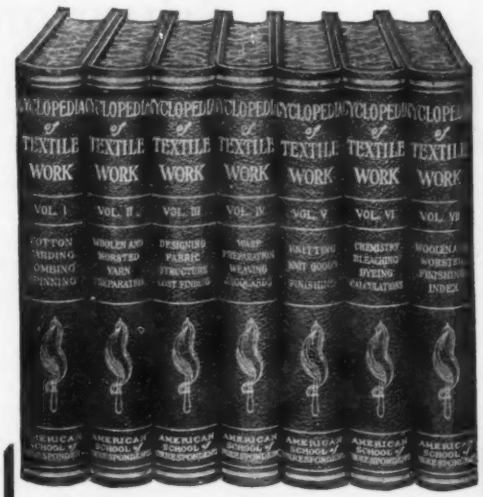

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Superintendent of a small cotton mill, or superintendent of weaving in a large mill; worked on all classes of cotton weaving, including jacquards, lappets, lenos, and fancies of most every description; familiar with all makes of American looms; will not go to Pa., N. Y., N. J., West, South or Canada; 42 years of age, married; good reference. 4317, Textile World Record, Boston, Mass.

Superintendent of Cotton Mill or assistant superintendent of large mill; worked on all styles of goods from plain to the most fancy fabric including lenos, corduroys and velvets; familiar with all makes of modern cotton machinery on the market today; also old fashioned Draper, Mason, Paulvins and Whitin machines; will not go to Conn., West, South or Canada; 23 years of age, married; good reference. 4450, Textile World Record, Boston, Mass.

Cotton Superintendent or overseer of large spinning room; worked on sheetings, shirtings, prints and hosiery yarns, numbers 8s to 60s; familiar with the Saco & Pettee, Lowell, Mason, Fales & Jenks, Curtis & Marble, H. & B., Draper, D. & B., etc.; will not go to Penn., N. Y., N. J., West, South or Canada; 49 years of age, married; good reference. 4422, Textile World Record, Boston, Mass.

Superintendent of a Yarn or plain goods mill, carder or ring spinner; worked on ducks, tickings, shirtings, sheetings and grain bags; familiar with all makes of cotton machinery; will not go West, South or Canada; 49 years of age, married; good reference. 4401, Textile World Record, Boston, Mass.

WOOLEN SUPERINTENDENTS.

Superintendent, superintendent and designer or manager; worked on fine and coarse woolen goods made from wool, shoddy and cotton mixes, also fine and medium worsteds, both skein, piece dyes and resist dyes; familiar with all kinds of machinery in general use in this country; 50 years of age, married; good reference. 4721, Textile World Record, Boston, Mass.

Superintendent or assistant superintendent; worked on cassimeres of all grades, ladies' dress goods, athletic goods, shirtings and blankets; will not go to Canada; 40 years of age, married; good reference. 4723, Textile World Record, Boston, Mass.

Superintendent, assistant superintendent or boss weaver in a large mill; worked on fine fancy worsteds, both men's and women's wear, fancy woolens, dress goods, kerseys, broadcloths, satinets, cotton worsteds and flannels; familiar with all makes of machinery; will not go West, South or Canada; 34 years of age, married; good reference. 4365, Textile World Record, Boston, Mass.

Superintendent or Designer in a Woolen Mill. Worked on all classes of worsted goods. Familiar with all makes of machinery. Good reference. 50 years of age, married. 4673, Textile World Record, Boston, Mass.

Superintendent or assistant superintendent of weaving or spinning and weaving; worked on worsted and cotton dress goods, men's wear, piece dyes, serges, cheviots, fancy worsteds, cork screws, and rain cloths; familiar with English and American makes of machinery; 43 years of age, married; Good reference. 4431, Textile World Record, Boston, Mass.

WOOLEN DESIGNERS.

Assistant Designer, boss weaver or section hand; worked on woolen, worsted and mercerized goods; familiar with the Crompton, Knowles and Thayer looms; will not go to Pennsylvania, Vermont, New Jersey, West, South or Canada; 30 years of age, married; good reference. 4725, Textile World Record, Boston, Mass.

Designer or Superintendent of a small mill; worked on fine and medium quality fancy worsteds, woolens, resist piece dyes, serges, overcoatings, thibets, unfinished worsteds, rain cloths, cotton worsteds, etc.; will not go West, South or Canada; 42 years of age, married; good reference. 4427, Textile World Record, Boston, Mass.

Assistant Designer; worked on worsted, cotton worsted and some woolen goods; familiar with twisters, dressers, looms and finishing machinery; 24 years of age, American. 4320, Textile World Record, Boston, Mass.

Designer; worked on fancy worsteds, piece, resist or union dyes, woolens or mercerized; familiar with the Crompton & Knowles looms; has had 15 years of experience in the pattern room; will not go to Pa., N. Y., N. J., West, South or Canada; good reference. 4309, Textile World Record, Boston, Mass.

POSITIONS OPEN

We have a first-class position open for a fixer on Scott & Williams and Cooper machines on underwear at good wages; positions as finisher on hosiery and underwear open; sewing machine fixers and for a second hand in the dye house on hosiery and mittens. For further information, address Registry Department, Textile World Record, 144 Congress St., Boston, Mass.

KNITTERS.

Superintendent of underwear or hosiery mill; worked on all classes of goods made on latch needle machines; all kinds of hosiery except full fashioned; familiar with different makes of machinery; 43 years of age, married; good references. 4718, Textile World Record, Boston, Mass.

Overseer of Knitting; worked mostly on men's underwear; familiar with the Cooper circular, spring needle, body and cuff machines, also Wildman and latch needle; will not go to New Jersey, South or Canada; 31 years of age, married; good reference. 4719, Textile World Record, Boston, Mass.

Superintendent of an underwear mill; has made all kinds and weights of ladies', men's and children's underwear on latch needle machines; familiar with the Nye & Tredick, Scott & Williams, McMichael, Wildman, Brinton, Pepper, Stafford & Holt, Union Special, Wheeler & Wilson, Singer button and buttonhole machines; good reference. 4716, Textile World Record, Boston, Mass.

Overseer of Knitting; has worked on tights, theatricals, ribbed and silk stockings, full fashioned, silk combinations, shirts, drawers and ribbed underwear; familiar with Cotton and Branson makes of machinery; 32 years of age, married; good reference. 4722, Textile World Record, Boston, Mass.

Supt., Asst. Supt. or Overseer of Finishing on cotton wool underwear and overshirts; understands the manufacturing of these goods from raw stock to finished fabric, Davis & Furber cards and jacks, Tompkins, Campbell & Clute and Cooper knitting machines, good reference, 40 years of age, married. 4109 Textile World Record, Boston, Mass.

Superintendent of a Ribbed Underwear Mill, assistant superintendent or overseer of finishing in a large mill. Worked on men's, ladies', children's underwear and government and merino knit underwear. Familiar with all makes of machinery. 38 years of age, married. Good reference. 4677, Textile World Record, Boston, Mass.

Superintendent of a Knitting Mill or would accept position as boss finisher; worked on flat, ribbed, fleece lined from yarn to finished garment, balbriggans, sweaters and full fashioned; familiar with all classes of machinery to make above goods; 31 years of age, American, married; good reference. 4192, Textile World Record, Boston, Mass.

KNITTERS

Overseer of Knitting, fixer, or second hand; worked on cotton and worsted cashmere, woolen, lisle, mercerized, silk, stripes, heel and toe tips from 7 to 18 needles to the inch; familiar with all makes of machinery; 35 years of age, married; good reference. 4253, Textile World Record, Boston, Mass.

Overseer of Knitting; worked on ladies' seamless hosiery, ribbed, topped and plain; familiar with Acme, Banner, Scott & Williams, Hemphill, and some experience on Standard; will not go to Canada; good reference; 27 years of age, married. 4255, Textile World Record, Boston, Mass.

Superintendent or overseer of knitting in a hosiery mill; position wanted by a man 33 years of age, single; has worked on ladies', men's and misses' wool, worsted and cotton seamless hosiery on Wildman, Scott & Williams, Ruth and Brinton ribbers, Hepworth and Beatley loopers, Acme and Geo. D. Mayo automatic foot machine; good recommendations. 3698, Textile World Record, Boston, Mass.

Superintendent of a Small Underwear Mill, overseer of finishing or latch knitting; worked on circular knit goods; familiar with knitting, Nye & Tredick, Wildman, Stafford & Holt, finishing, Singer, Wheeler & Wilson, Merrow, Union Special and National machines; 22 years of age, single; good reference. 4263, Textile World Record, Boston, Mass.

Superintendent or Overseering; worked on cotton hosiery, 200 needle, cashmere, woolen, these grades in all gauges, also full fashioned hosiery; familiar with all makes of machinery; will not go South or Canada; 38 years of age, married; good reference. 4380, Textile World Record, Boston, Mass.

Assistant Superintendent or overseer or knitting on union suits, underwear, all makes of sweaters, toques, blouses, waists and fancy goods; familiar with Leighton, McMichael & Wildman, Nye & Tredick, Stafford & Holt, Tompkins Bros., Campbell & Clute, Acme, Cooper spring needle machines; also cuff and sewing machines; good reference; 42 years of age, married. 4110, Textile World Record, Boston, Mass.

Overseer of Knitting on underwear and double rib knitting machines; worked on all kinds of goods made on double rib machines; will not go South; 36 years of age, married, American; good reference. 4151, Textile World Record, Boston, Mass.

Superintendent of an Underwear Mill or Lamb machine foreman; worked on full fashioned underwear, also lines of cut goods for the retail trade; familiar with Lamb & Wildman knitting machines and Singer, Wheeler & Wilson, Union Special and Reece makes of machinery; 30 years of age, married; good reference. 3856, Textile World Record, Boston, Mass.

Overseer of Finishing Hosiery, or assistant superintendent; worked on all classes of hosiery, cotton, wool and worsted, seamless and fashioned; all makes of finishing machinery; understands finishing in all its branches; good reference; 40 years of age, married. 4131, Textile World Record Boston, Mass.

Machine Fixer; worked on ladies', men's and children's hosiery, mostly ladies'; familiar with the Victor, Standard, A. & B., Excelsior, Boss, Paxton & O'Neil makes of machines; prefers Pennsylvania; 24 years of age, single; good reference. 4335, Textile World Record, Boston, Mass.

Cutting Machines

Every Textile Manufacturer has his own special problems. If these problems relate to cutting cloth, paper, felt, &c., in any way, shape or form we are always glad to volunteer our help in solving them.

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Cameron Machine Co.

Special Textile Machine Designers

WOOLEN CARDERS.

Cotton Waste Spinning. Wanted position as superintendent or Boss Carder; familiar with the practical working of all classes of hard and soft cotton waste. Thoroughly understands the different systems, Tape Condenser Ring Doffer, etc. English, 28, married. A. B. C., Textile World Record, Boston, Mass.

Overseer of Carding or spinning, or superintendent of a small plant; worked on hosiery, shawls, blankets, cassimeres, overcoatings, homespuns, covert cloths, wool, shoddy and cotton mixes from 1 to 9 run; familiar with all makes of machinery; will not go to Canada; 45 years of age, married; good reference. 4728, Textile World Record, Boston, Mass.

Overseer of Carding and spinning; worked on cotton, wool and shoddy mixes; mixes from 1 to 6 1/2 run; familiar with D. & F. cards and mules, also Cleveland cards; 25 years of age, married; good reference. 4729, Textile World Record, Boston, Mass.

Overseer of Carding and spinning in a small woolen mill, or boss spinner in a large mill; worked on woolen, woolen and cotton mixes, cotton and woolen carpet yarn, plush robes and mohairs; familiar with Furbush, Smith, Davis & Furber, Bridesburg, Asa Lee's mules and cards; 36 years of age, married; good reference. 4712, Textile World Record, Boston, Mass.

Overseer of Wool Carding for position of second hand; worked on all classes of goods made from wool, cotton and shoddy mixes on D. & F., Henderson and Lombard cards; 25 years of age; single; good references. 4717, Textile World Record, Boston, Mass.

Overseer of Carding or good second hand position; worked on all kinds of hosiery, wool, shoddy and cotton mixes, etc. Familiar with D. & F., Taintor, Furbush, Cleveland, Lombard, Bridesburg condensers, all kinds of roll and apron machines; 25 years of age, married; good reference. 4733, Textile World Record, Boston, Mass.

COTTON CARDERS.

Overseer of Carding or spinning, or superintendent; worked on ring spinning from 4s to 100s, carding, colored, combed, and carded up to 24 hank; 34 years of age; good reference. 4465, Textile World Record, Boston, Mass.

Overseer of Carding or spinning in a large or superintendent of a small cotton mill; worked on yarns (warps), 6-20, and map yarn; familiar with Asa Lee, English, Mason, Whitin and Saco & Pettee machines; will not go to Maine or Canada; 23 years of age; good reference. 4442, Textile World Record, Boston, Mass.

Second Hand of cotton card room or overseer of small room; worked on American cotton, 7/8 to 1 3/8 staple, 1 to 15 hank; Egyptian cotton, 8 to 15 hank, carded and combed; familiar with Howard & Bullough, Dobson & Barlow, Saco & Pettee, also some experience on Providence fly frames; will not go to Me., N. J., South or Canada; 30 years of age, married; good reference. 4443, Textile World Record, Boston, Mass.

Overseer of Cotton Carding or assistant superintendent; worked on all classes of cotton goods, both white and colored; familiar with American and English makes of machinery; will not go to N. Y., N. J., West, or South; 39 years of age, married; good reference. 4455, Textile World Record, Boston, Mass.

Overseer of Cotton Carding, or good second hand position; worked on sheetings, prints, hosiery yarns, coarse and fine numbers from 1/2 hank to 25 hank rovings; familiar with Whitin, Lowell, H. & B., Platt, and other makes of machinery; 39 years of age, married; good reference. 4399, Textile World Record, Boston, Mass.

WOOLEN FINISHERS.

Overseer of Finishing; worked on friezes, meltons, chinchillas, cheviots, overcoatings, suitings, beavers and kerseys. Familiar with Parks & Woolson, James Hunter, Rodney, Hunt, Curtis & Marble, Davis & Furber and Gessner makes of machinery; will not go to Pennsylvania, New Jersey, West, South or Canada; good reference. 4720, Textile World Record, Boston, Mass.

Overseer of Finishing; worked on all kinds of face finished goods, also dress goods; familiar with all kinds of finishing machinery; will not go West, South or Canada; 39 years of age, married; good reference. 4053, Textile World Record, Boston, Mass.

Overseer of Finishing; worked on unions, cassimeres, cotton worsteds, satinets, serges, meltons, thibets; also understands speck dyeing, both in mill and washer and can do piece dyeing in connection with finishing; familiar with most all makes of woolen machinery; prefers Massachusetts, Rhode Island and Connecticut; will not go West, South or Canada; 46 years of age, married; good reference. 4734, Textile World Record, Boston, Mass.

COTTON FINISHERS.

Overseer of Cloth Room (colored preferred), or cloth inspector; worked on colored and white, mercerized, dress goods, fine lawns, sateens, silicias, skirtings, vestings, chambrays, seersuckers, colored ducks, bleached and finished goods, etc.; familiar with folding machines, Elliot & Hall, or Curtis & Marble, also burlers and winders of the same makes, Schofield or Windle doublers; will not go West or South; good reference. 4250, Textile World Record, Boston, Mass.

Beetle Finisher; worked on all kinds of cotton goods, plain and fancy; familiar with the Phoenix make of machines, also the Granger; will go any place for a good position; 40 years of age, married; good reference. 4222, Textile World Record, Boston, Mass.

Overseer of Cloth Room; has handled most every kind of goods except duck; familiar with all kinds of machinery in the business; will not go to R. I., Conn., Vt., Pa., N. J., N. Y., West, South, or Canada; good reference; 50 years of age, married, American. 4343, Textile World Record, Boston, Mass.

DYERS.

Overseer of Dyeing; worked on worsteds, woolens, broadcloths, kerseys, both piece and raw stock; familiar with all kinds of machinery; will not go to New Hampshire, Vermont, Massachusetts, New Jersey or New York; 25 years of age; good reference. 4726, Textile World Record, Boston, Mass.

Overseer of Dyeing; worked on worsted yarn, wool, shoddy, piece dyes, acid shades, resist unions, chromate and top chrome colors; familiar with Klauder, Weldon and Hunter makes of machinery; will not go to Maine, New Hampshire, Vermont, Pennsylvania, New York, New Jersey, West, South or Canada; 32 years of age, married; good reference. 4727, Textile World Record, Boston, Mass.

Second Hand in Dye House; worked on ladies' dress goods, worsted piece dyes, worsted yarns, resist colors, cotton yarns and raw stock on wool and cotton; will not go to Pennsylvania, West, South or Canada; 22 years of age; good reference. 4710, Textile World Record, Boston, Mass.

Overseer of Dyeing; worked on cotton, wool, shoddy, woolen piece dyes, cotton warps, cotton yarn, worsted yarn and resist colors; familiar with the Klauder and Weldon dyeing machines; 35 years of age, married; will not go to Pensylvania, New Jersey, New York, West, South, Canada or Vermont; prefers Maine; good reference. 4711, Textile World Record, Boston, Mass.

BLEACHERS AND DYERS.

Overseer of Bleaching on jute and linen yarn; 47 years of age, married; good reference. 4732, Textile World Record, Boston, Mass.

Dyer, Bleacher or dyestuff demonstrator; worked on cotton and worsted skeins, cotton warps, cotton and wool raw stock, all kinds of knit goods, underwear, roll, garment and hosiery; familiar with all kinds of dyeing and drying machinery; will not go to Canada; 41 years of age, married. 4244, Textile World Record, Boston, Mass.

Boss Dyer and Bleacher; worked on all grades of underwear, roll dyeing, and bleaching, wool and cotton yarns, and raw stock; familiar with the Rodney Hunt roll dyeing, washing and bleaching machines, Klauder-Weldon dyeing machines, Murphy boiling out kier and dyeing machines; will not go to Mass., Me., West, or South; prefers N. Y., or Pa.; 29 years of age, married; good reference. 4354, Textile World Record, Boston, Mass.

Wanted; superintendency of bleaching, dyeing and finishing by a thoroughly practical man; Englishman, 28 years of experience on all kinds of cotton piece goods, laces, embroideries, especially lawns, also knit goods, yarns, organdies, etc.; can guarantee satisfaction; furnish A1 references and willing to go anywhere. 4453, Textile World Record, Boston, Mass.

MASTER MECHANICS.

Master Mechanic or Assistant. Worked on all kinds of cotton mill machinery and repairs; good reference, 28 years of age, married. 4118 Textile World Record, Boston, Mass.

Chief Engineer and electrician, or master mechanic where stress is laid on a thorough knowledge of the power plant; familiar with engines, boilers, water wheels, electrical machinery, etc; 40 years of age, married; good reference. 4143, Textile World Record, Boston, Mass.

Master Mechanic; familiar with all makes of woolen machinery; understands engines, boilers, dynamo, electric lighting, motors, water wheels, etc.; will not go to Pa., West, or South; 41 years of age, married; good reference. 4391, Textile World Record, Boston, Mass.

Master Mechanic; familiar with woolen machinery; will go to the New England States only; 44 years of age, married; good reference. 4390, Textile World Record, Boston, Mass.

Master Mechanic or overseer of weaving; worked on all kinds of dress goods, colored and fancy, sheetings, shirtings, etc.; familiar with all kinds of Whitin machinery, Draper, Crompton & Knowles looms, machine tools and cotton machinery; will not go West or South; 40 years of age, married; good reference. 4367, Textile World Record, Boston, Mass.

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WOOLEN DRESSERS.

Overseer of Dressing, spooling, winding or twisting; worked on dress goods, resist dyes, fancy worsteds, fancy cottons, woolen suitings and overcoatings; familiar with almost all kinds of dressing, spooling, twisting and winding machinery; will not go to Pa., West, South or Canada; 30 years of age, married; good reference. 4364, Textile World Record, Boston, Mass.

Overseer of Woolen Dressing; worked on woolens and worsteds; familiar with all kinds of machinery; will not go to Penn., N. Y., N. J., West, South or Canada; 40 years of age, married; good reference. 4410, Textile World Record, Boston, Mass.

Overseer of Dressing, winding, spooling and twisting; experienced on all grades of men's wear, dress goods, in fancy piece dyes, resist piece dyes, rain and woolen cloth; familiar with Cleveland and Davis & Furber dressers; any make of spoolers, any kind of winders, and Altemus machines; will not go to Penn., N. J., West, South or Canada; 33 years of age, married; good reference. 4426, Textile World Record, Boston, Mass.

COTTON DRESSERS.

Overseer of Warping and spooling in a worsted or woolen mill; worked on fancy worsteds, men's wear, dress goods, woolen cassimeres, beavers, doeskin, broad cloths and fancy dress goods; familiar with various makes of warping and spooling machinery; 48 years of age, married; good reference. 4147, Textile World Record, Boston, Mass.

Overseer of Dressing; worked on all classes of colored and white goods from No. 8 to No. 120; familiar with all makes of machinery; will not go to Pa., West, or Canada; 48 years of age, married; good reference. 4316, Textile World Record, Boston, Mass.

WORSTED MILL OVERSEERS.

Superintendent of worsted yarn mill by Englishman 38 years of age, married; made all kind of yarns; good reference; will not go West, South or Canada. 4714, Textile World Record, Boston, Mass.

Overseer of Drawing, spinning or section hand; Worked on mohair, alpaca, lustre, botany and cross braids; familiar with all kinds of machinery; will not go to Canada; 32 years of age, married; good reference. 4231, Textile World Record, Boston, Mass.

Second Hand in the combing department in a worsted mill; worked on coarse and fine wools; familiar with English, Crompton and Noble combs; 40 years of age, married; good reference; two workers in the family. 4123, Textile World Record, Boston, Mass.

Superintendent of a worsted spinning plant, or would consider any of the branches, if satisfactory, worked on all classes of yarn from carpet to 1/2 blood; familiar with American and English makes of machinery, open and cone drawing; will not go to N. J., West, South or Canada; 43 years of age, married; good reference. 4379, Textile World Record, Boston, Mass.

Overseer of Drawing and Spinning in a worsted yarn mill. Over 20 years' experience on fine, medium and coarse wools, also mohair and alpaca. Has been employed in large worsted mills in the United States. Understands all makes of machinery. Good reference. 45 years of age, married. 4656, Textile World Record, Boston, Mass.

Overseer of Spinning, spooling or twisting; worked on most all kinds of goods in worsted yarn from 10s long wool to 65s botany and Australian; familiar with Lowell Machine Shop, Providence, Hall & Stell, Prince & Smith, Boyd makes of machinery; cap, ring or fly, twisters, frap and Collins Bros.; will not go South or Canada; 50 years of age, married; good reference. 4311, Textile World Record, Boston, Mass.

WOOLEN SPINNERS.

Overseer of Spinning; worked on knitting yarns of all kinds from 12 run to 1/2 run; familiar with D. & F., J. & B., Platt and Bancroft makes of machinery; 45 years of age, married; good reference. 4730, Textile World Record, Boston, Mass.

Overseer of Spinning; worked on hosiery, flannels, knit goods, in fact all classes of goods; familiar with Davis & Furber and Paul mules; will not go to Me., Vt., Pa., N. J., West, South or Canada; 38 years of age, married; good reference. 4372, Textile World Record, Boston, Mass.

Overseer of Woolen Spinning; worked on ladies' dress goods; familiar with the Davis & Furber machines; will not go to Pa., N. Y., N. J., West, South or Canada; 49 years of age, married; good reference. 4362, Textile World Record, Boston, Mass.

Overseer of Spinning; worked on wool, silk and cotton mixes from one to ten run; familiar with D. & F., J. & B., Paul, English, and Bancroft mules; will not go to Me., N. H., Vt., Pa., West, South, or Canada; 42 years of age, married; good reference. 4342, Textile World Record, Boston, Mass.

Overseer of Spinning; worked on all classes of yarns; familiar with Johnson & Bassett makes of machinery; will not go to Mass., R. I., Conn., Me., N. H., Vt., South or Canada; 35 years of age, married; good reference. 4284, Textile World Record, Boston, Mass.

Overseer of Woolen Spinning; worked on cheviots, cassimeres, outings, kerseys, thibets, venetians, coverts, cotton mixes, fancy overcoats, suitings and all kinds of double twist yarns; familiar with D. & F., J. & B. mules, twisting and spooling frames; 33 years of age; good reference. 4261, Textile World Record, Boston, Mass.

Overseer of Woolen Spinning; worked on all grades of goods; familiar with J. & B., D. & F., Smith, Molton and Bancroft makes of machinery; 40 years of age, single; good reference. 4265, Textile World Record, Boston, Mass.

COTTON SPINNERS.

Overseer of Spooling, warping, beaming, chain quilling and spinning if connected with above; worked on 4s to 60s for denims, covert cloths, shirtings, and fine dress goods; familiar with the Whitin, Draper, Entwistle, and Biddeford makes of machinery; will not go South; 33 years of age, married; good reference. 4731, Textile World Record, Boston, Mass.

Second Hand in ring spinning by a married man 31 years of age; worked on yarns from 6s to 120s on Whitin, Lowell, Fales & Jenks, Saco & Pettee machines; good reference. 4713, Textile World Record, Boston, Mass.

Overseer of Ring Spinning, spooling and warping. Worked on sheetings, ducks, crash, etc. Familiar with all makes of ring spinning machinery. Good reference. 50 years of age, married. 4688, Textile World Record, Boston, Mass.

Any Position in Cotton, spinning or twisting department where there is a chance for advancement; has worked on low counts, 20s to 30s, and American cotton for sewing thread; familiar with all reading types of German and English cotton machinery, mule and ring frame; has also had instruction in steam and electrical engineerng; 21 years of age, single; will not go to Pennsylvania, New Jersey, West, South or Canada; good reference. 4165, Textile World Record, Boston, Mass.

Overseer of Spinning, warping, dressing or spooling; worked on sheetings, shirtings, prints and hosiery yarns, plain and colored work; familiar with Saco, Pettee, Mason, Fales & Jenks frames, Saco & Pettee spoolers, Lewiston warpers, Howard & Bullough dressers and Universal winders; will not go to Penn., N. Y., N. J., West or South; 25 years of age; good reference. 4415, Textile World Record, Boston, Mass.

WOOLEN WEAVERS.

Overseer of Weaving or position as second hand in a woolen or worsted mill; plain or fancy; familiar with Knowles & Crompton looms; married man, 43 years of age, English; good references. 3647, Textile World Record, Boston, Mass.

Overseer of Weaving, weaving and dressing, weaving and designing or burling and mending; worked on all classes of worsteds and woolens, also unions of any description or grade; familiar with the Crompton, Knowles, Crompton & Thayer, fancy and plain and Davis & Furber looms; 35 years of age, married; good reference. 4360, Textile World Record, Boston, Mass.

Overseer of Weaving; worked on all kinds of woolen goods; familiar with Crompton & Knowles, Gilbert and Stafford looms, also a good knowledge of others; will not go South; 47 years of age, married; good reference. 4363, Textile World Record, Boston, Mass.

Overseer of Weaving or second hand in a good mill; worked on all kinds of woolens and worsteds, plain and fancy; familiar with Crompton, Knowles, Thayer and fancy looms; will not go to Vt., West, South or Canada; 31 years of age, married; good reference. 4349, Textile World Record, Boston, Mass.

Overseer of Weaving; worked on fancy worsteds, cotton worsteds, men's wear, and dress goods of all kinds; familiar with Crompton & Knowles looms; will go anywhere for a good position; 31 years of age, single. 4218, Textile World Record, Boston, Mass.

Overseer of Weaving; worked on woolens, worsteds and plain and fancy dress goods; can handle burling, sewing, specking and drawing-in; will not go South, or to Canada; 44 years of age, married; good reference. 4216, Textile World Record, Boston, Mass.

COTTON WEAVERS.

Overseer of Weaving, or weaving and designing; worked on all lines of fine cotton goods, white and colored, plains, sateens, fancies, lenos, lappets, cross weaves, handkerchiefs, velveteens, towels, bed spreads, etc.; familiar with all up to date weaving appliances; will not go West, South or Canada; has had 24 years of experience; 39 years of age, married; good reference. 4724, Textile World Record, Boston, Mass.

Second Hand of Weaving or designing in cotton mill; worked on all kinds of cotton goods; familiar with all kinds of American weaving machinery; 33 years of age, married; good reference. 4327, Textile World Record, Boston, Mass.

A Young Man desires position in cotton weave room to become eventually an overseer; 28 years of age; has had a textile school education and is good at designing and calculating; will go anywhere for a position and can take a position immediately; German. 4164, Textile World Record, Boston, Mass.

Overseer of Weaving in a cotton mill; worked on plain twills, drills, sheetings, ducks, shirtings and hair cloth; familiar with Mutual, Crompton & Knowles looms; will not go to Mass., R. I., Conn., Me., N. H., Vt., West or Canada; 42 years of age, married; good reference. 4212, Textile World Record, Boston, Mass.

Overseer of Weaving; worked on linen, cotton, silk, plain and fancy goods, lenos, ducks, drills, rubber goods and lappetts; understands designing; familiar with the pick and pick looms, jacquards, box and plain looms; also worked on 2 to 25 harness work; will not go to Pa., N. Y., N. J., West, South or Canada; 38 years of age, married; good reference. 4269, Textile World Record, Boston, Mass.

MISCELLANEOUS.

Bookkeeper, Office Manager, traveling salesman or assistant superintendent; worked in cotton and wool mill offices; 40 years of age, married; will not go West, South or Canada; good reference. 4207, Textile World Record, Boston, Mass.

Clerk or Confidential Clerk to superintendent of a woolen or worsted mill. Has been employed in leading mills in Massachusetts. Good reference. 39 years of age, married. 4651, Textile World Record, Boston, Mass.

Overseer of Burling and Sewing, or would accept a position as finisher in a fancy worsted mill; worked on fancy worsteds, woolens, cotton worsteds and dress goods of all kinds; familiar with all kinds of finishing machinery; will not go to Pa., N. Y., N. J., West, South or Canada; good reference; 35 years of age, married. 4226, Textile Weorld Record, Boston, Mass.

Sewing Machine Fixer; worked on flat and rib underwear; familiar with the Wilcox, overedge trimmers, lockstitch, Merrow, Union Special, Horn covering machines, overlock, also the Singer seamers; will not go to Me., Conn., Pa., West, South or Canada; 24 years of age; good reference. 4446 Textile World Record, Boston, Mass.

Overseer of Burling and Mending, or clothing house examiner; worked on fine and medium worsteds, cassimeres, kerseys, cheviots, dress goods and coverts; will not go to Me., N. H., Vt., West or Canada; 49 years of age, married; good reference. 4282, Textile World Record, Boston, Mass.

Overseer of Folding and Packing; worked on fine and fancy goods; 36 years of age, married; good reference. 4274, Textile World Record, Boston, Mass.

Overseer of Wool Sorting or wool grader; worked on all kinds of wool, both foreign and domestic; 44 years of age, married; will not go West, South or Canada; good reference. 4214, Textile World Record, Boston, Mass.

Loom Fixer; worked on cassimeres, cheviots, dress goods, blankets, flannels and shirtings; familiar with Knowles looms; good reference; 28 years of age, married. 4203, Textile World Record, Boston, Mass.

Braider Foreman or Fixer; young man would like to hear from dress trimming house; has worked on all kinds of braids, plain and fancy work, and all kinds of machines; can furnish best of references. 4406, Textile World Record, Boston, Mass.

Cloth Examiner; worked on worsteds and woolens, men's wear and dress goods; will not go West, South or Canada; 30 years of age, married; good reference. 4420, Textile World Record, Boston, Mass.

Overseer of Burling or sewing, second hand, or good perch position; worked on piece dyes, fancy worsteds, etc.; will not go to Canada; 43 years of age; good reference. 4341, Textile World Record, Boston, Mass.

Electrical Engineer; has worked for gas and electric concerns; familiar with the Baldwin and Wood engine, general electric generator, general electric switch board, Manger, Lewis and George & Forster; will not go to Me., N. H., Vt., Pa., N. Y., N. J., West, South, or Canada; 25 years of age; good reference. 4347, Textile World Record, Boston, Mass.

Traveler Wanted

An important **Aniline Color House** in New York wants an accomplished Traveler for Canada. Apply to B No. 1, Textile World Record, Boston, Mass.

MEN WANTED.

Wanted

A Woolen Superintendent

A thorough textile expert and producer. A man of high character and ability to handle men; in a moderately large up-to-date woolen mill, which is largely running on a specialty. State experience and classes of goods which you have made successfully and profitably.

This is an unusual chance and excellent future for the right man. Expect to pay over $3,000 to start.

Address "Face Finish," care Textile World Record.

Dyer Wanted.

Competent Dyer on cotton piece goods wanted. Address, C. D., Textile World Record, 144 Congress Street, Boston, Mass.

Overseer of Finishing Wanted

We want an experienced man to take charge of the finishing department of men's, women's and children's sweater coats. For further particulars address P. O. Drawer F, Cleveland, Ohio.

Salesman Wanted

Cotton Cordage Salesman—young man with some knowledge of the cordage business. State age, experience and salary. Address "Cotton Cordage," Textile World Record, Boston, Mass.

WANTED MERCERIZER

A man who thoroughly understands the handling of warps and the warp mercerizing process. Only a high-class man need apply.

Address "Mercerizer," Textile World Record.

Wanted, Agent calling on all Card Clothing Manufacturers, to represent English firm of Card Setting Machine Makers. Apply A. Blackburn, No. Tofts Mill, Cleckheaton, Yorkshire, England.

Summer Water

During the summer months the decaying vegetable matter in the mill pond causes the water to grow slimy. When heated for use a scum forms on the top of the water showing the presence of impurities. If these impurities are not removed the scoured wool will be "sticky" and the cloth will show streaks. To correct these impurities the water is often treated with ammonia. Why not use

None Genuine except with a card bearing this Trade Mark

In every package.

Wyandotte Textile Soda

It is much less expensive and the results will be a surprise to you. Although this is a minor use for this soda it is none the less helpful. Write us for further information and ask your supply house to furnish you Wyandotte Textile Soda.

The J. B. FORD CO., Sole Mnfrs.

Wyandotte, Mich., U. S. A.

This Soda has been awarded the highest prize wherever exhibited.

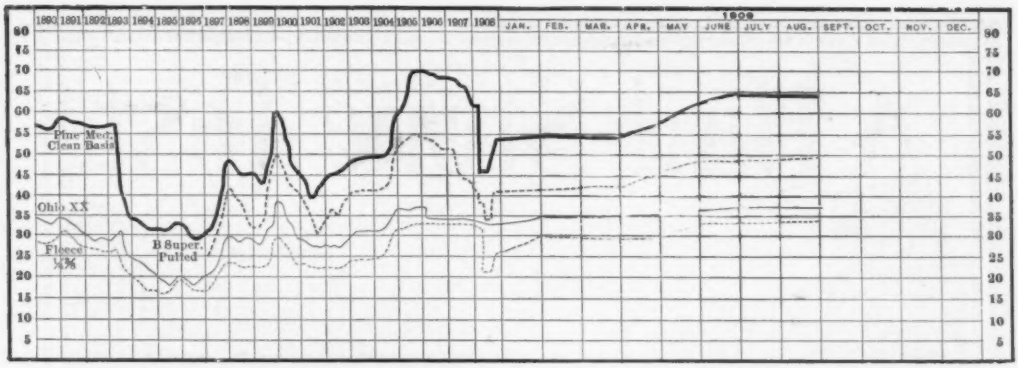


CHART SHOWING RANGES IN THE PRICE OF WOOL TO DATE.

The Wool Market.

An unusually large amount of territory wool has been bought by woolen and worsted manufacturers since our last report, and as a result prices for wool of all kinds are firm. Concessions on prices are out of the question. Nevertheless quotations are not advancing. The price of wool in this country has reached the point where it is practically equal to the foreign price plus the duty. This makes any further advance in the United States dependent on an advance in the foreign market. Buying in Australia began early and at full prices, and there is a general disposition on the part of dealers to speculate on a further advance. The manufacturers at Bradford and on the Continent are raising danger signals and pointing to the similarity between present conditions and those prevailing in 1907 just before the panic, which was accompanied by shrinkage of wool values and heavy losses in all branches of the trade. That there is a shortage of wool throughout the world is evident, but it should be borne in mind that a shortage can be quickly converted into a surplus by a falling off in the demand. Although there is no present prospect of such falling off, it is a time when spinners may well adopt a waiting policy and let others hold wool at the high prices now prevailing.

---

*Massachusetts, Boston. The East Boston Co. has subscribed for $150,000 of the $500,000 common stock of the new Maverick Mills. Part of the stock is taken in payment for the $50,000 of land which the East Boston Co. has sold to the Maverick Mill, while it is said that $100,000 will be paid in cash. Arrangements are practically completed for the underwriting of the $750,000 preferred stock of the Maverick Mills.

Massachusetts, Boston. It is said that the liabilities of the Eastern Worsted Co. are less than $10,000, and it is likely that the affairs of the company will be closed from the present bankruptcy proceedings.

INVESTIGATE THE ONE DYEING MACHINE THAT DOES PERFECT WORK

The Delahunty

Circulating type of machine for Bleaching Rawstock, Yarns and Warps, Dyeing the Vat Colors, Sulphurs, Indanthrines, Ciba, and Algol Dyes will prove to you, as it has proven to others, that it is the only machine that does perfect work.

DELAHUNTY DYEING MACHINE CO.

General Office, Pittston, Pa. **Southern Agents, Alexander and Garsed.**

A Hail Stone Test

Barrett Specification Roofs

ON November 9, 1908, the town of Mena, Ark., was visited by a terrific hail storm, the hail stones in many instances being as large as hen's eggs. The photograph herewith shows the exceptional character of the storm.

Ready roofings of every kind were cut to pieces. Even the tin roofs were badly damaged. Gravel Roofs laid along the lines of The Barrett Specification alone stood the test. *They were not damaged a particle.* Many buildings had to be re-roofed entirely, but no owner of a Barrett Specification Roof was called upon to spend a cent for repairs.

Barrett Specification Roofs are built of coal tar pitch, tarred felt and slag or gravel. They are almost universally used to cover large manufacturing plants, railroad buildings, massive office structures and first-class buildings of every kind.

One of the reasons for their great popularity is their low cost, being less than metal roofs of any kind and very little more than the ordinary short-lived ready roofings. As compared with both metal and ready roofings, their cost per year of service is very much less because (1st) of their much longer life, (2d) because there is no expense for maintenance, while metal and ready roofings must be painted every few years or they will rapidly deteriorate.

We will send free to any architect, engineer or owner a copy of The Barrett Specification which defines with absolute precision the correct way to lay a roof of coal tar pitch, tarred felt and slag or gravel, so as to secure maximum efficiency at minimum cost.

BARRETT MANUFACTURING COMPANY

New York Chicago Philadelphia Boston Cleveland Pittsburg Cincinnati
Kansas City Minneapolis New Orleans St. Louis London, Eng.

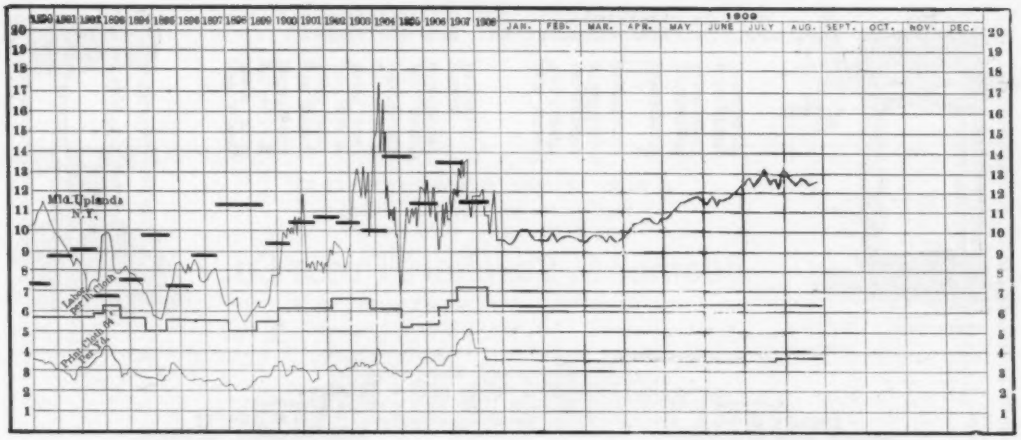


CHART SHOWING RANGE IN THE PRICE OF COTTON TO DATE.

The short, heavy, horizontal lines indicate the size of the cotton crops in millions of bales.

The Cotton Market.

A moderate stock of cotton on hand, the prospect that the size of the coming crop will not be much over the average, and the reasonable certainty that the revival of business throughout the world will be accompanied by the consumption of the largest quantity of cotton on record, have combined to keep the price of middling uplands well above twelve cents a pound. Lancashire is on short time because of the high price of the raw material, but American mills are more than making up for the curtailment abroad. The movement of American cotton into sight from Sept. 1 to Aug. 27 is estimated by the "Chronicle" for a series of years as follows:

1908-09	13,651,999 bales.
1907-08	11,547,638 bales.
1906-07	13,520,656 bales.
1905-06	11,280,959 bales.
1904-05	.... bales.
1903-04	.... bales.

The same authority estimates the world's visible stock on Aug. 27 at 1,945,023 bales, as compared with 1,713,541 bales on corresponding date in 1908, 2,323,844 bales in 1907, and 1,779,526 bales in 1906.

*Georgia, Griffin. The character and extent of the proposed enlargements to the Spalding Cotton Mills have not been determined, but the directors are working on plans, and this matter will be decided at an early date.

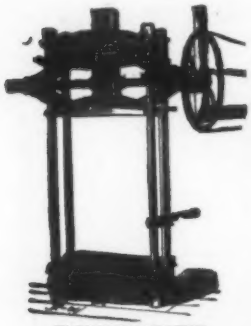
*Georgia, Vidalia. Stuart & Co. of Savannah, Ga., will in all probability carry to a successful conclusion the project to locate a cotton mill at this place.

Georgia, Thomasville. E. M. Mallette, J. M. Merrill and J. S. Montgomery are reported interested in organizing a company to operate a cotton mill here.

Indiana, Indianapolis. The Indianapolis Knitting Co. has been incorporated with capital stock of $50,000 by F. B. Harbottle, J. W. C. Pickering, and J. B. Harbottle. This is understood to be a reorganization of the Indianapolis Knitting Mills for which the Marion Trust Co. of Indianapolis was appointed receiver in May on petition of Fred B. Harbottle, president of the company. The mill has been shut down for several months.

Maine, Auburn. A change has been made in the control of the Little Androscoggin Water Power Co. which controls the Barker Mill. G. H. Milliken succeeds E. W. Goss as treasurer, and Seth M. Milliken succeeds H. A. Duncan as president. Seth M. Milliken has secured a controlling interest in the company.

WEIMAR BROS. MANUFACTURERS OF Cotton Mercerized Tapes,
SPOOL TAPES, BINDINGS AND NARROW FABRICS FOR UNDERWEAR AND OTHER TRADES.
Phone Connections. Works, 2046-48 Amber Street, PHILADELPHIA, PA.



KNUCKLE JOINT.

BOOMER & BOSCHERT

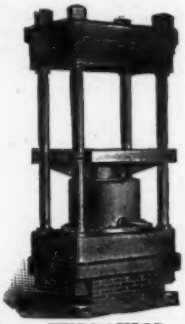
BALING PRESSES

ARE THE STANDARD

Hydraulic or Knuckle Joint
Any Size .. Any Power

Boomer & Boschert Press Co.

338 West Water S., SYRACUSE, N. Y.
Southern Agent, A. H. WASHBURN, Charlotte, N. C.



HYDRAULIC.

LUG STRAPS

EVERY SIZE AND KIND

TRADE MARK

We carry in stock all the ordinary sizes of duck and ticking lug straps and promptly make to order any sizes which are out of the ordinary.

Loom Pickers
Loom Harnesses
Picker Loops

Garland Mfg. Co., Saco, Maine

(Formerly Loom Picker Co., Biddeford, Maine)

A Rigid Examination Reveals No Defects in the

CROSBY SPRING-SAVE GLOBE AND ANGLE VALVE.

NO BETTER VALVE CAN BE MADE.

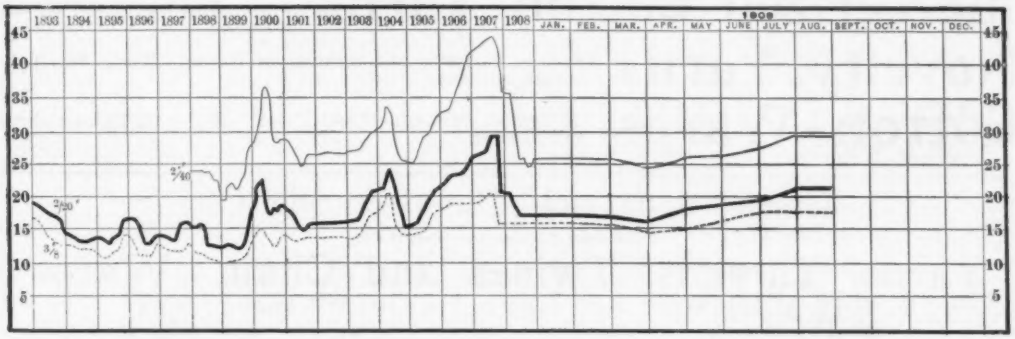
All Working Parts Renewable Without Removal from Piping. ALL PARTS INTERCHANGEABLE. THEY have a full opening through them. WHEN COMPLETED ARE TESTED under more than 400 lbs. pressure. We guarantee them NOT TO LEAK AT HIGH PRESSURES. MADE IN BRASS AND IRON in the various styles furnished to the trade. Try One or More Valves and BE CONVINCED.

CROSBY STEAM GAGE AND VALVE CO.

Stores: BOSTON, NEW YORK, CHICAGO, LONDON.

Office and Works: BOSTON, MASS.

Yarn Department.



GRAPHIC CHART SHOWING RANGE IN THE PRICE OF COTTON YARN TO DATE.

The Cotton Yarn Market.

The recent advance in cotton and in yarn has been very well sustained with the exception of a few soft spots in yarn, which can be accounted for by spinners having stocks of yarn on hand, made from low priced cotton, on which they are willing to make a concession in price.

Manufacturers in most lines have been busy and have orders ahead that will keep them busy for the next few months. There has been some complaint of dull business on the part of upholstery manufacturers.

There is a great deal of uncertainty as to the outcome of the cotton crop and as to the ability of the trade to handle the new crop at its present price. The outlook, however, is good in most textile lines, and business will undoubtedly be done on a much more satisfactory basis to spinners than for the past couple of years. We quote as follows:

Eastern Cops.

6s	20
8s	20¼
10s	20¾
14s	21¾
16s	22½
18s	22¾
20s	23¼
22s	23¾
24s	24¼
26s	24¾
30s	25½
34s	26½
36s	27½
40s	28½

On cones, ¾c. more up to 14s; 1c. more from 15s to 22s; 1½c. from 23s to 35s, and 2c. above that.

Eastern Two-Ply Skeins, Carded Peeler.

12s	22
14s	22½
18s	23
20s	24
24s	25
26s	26
30s	27
36s	30
40s	32
45s	36
50s	40
55s	44
60s	48

Eastern Two-Ply Warps, Carded Peeler.

2/30s	27
2/36s	30
2/40s	32
2/45s	36
2/50s	40
2/60s	48

Egyptian Weaving Yarns.
Single Skeins Combed.

30s	39
36s	41
40s	42
45s	45
50s	49
55s	52
60s	51
70s	62

During 1905 and 1906 Italy imported cotton mill machinery to the value of $14,781,263.

THE J. R. MONTGOMERY CO.,

Windsor Locks, Conn.

MANUFACTURERS OF

Mercerized Cotton Yarns Gives the High Silk-Like Lustre in Knit Goods and Woven Fabrics.

Novelty Yarns Boucle, Bourette and Spirals, in Cotton, Wool, Worsted, Mohair and Silk.

Cotton Warps on Beams, Jack Spools and Tubes. In Fancy, Twist, Colors and Printed.

Greene & Daniels Manufacturing Co.,

Combed, Carded and Gassed

Yarns, Threads, Twines and Chain Warps

Dye Sulphur Blacks Direct in Cops, Cones or Tubes.

Colored and Bleached Yarns Furnished in any manner desired by the trade.

Pawtucket, R. I.

MONUMENT MILLS,

Manufacturers of

White, Colored, Fancy and Double Twist

COTTON WARPS

HOUSATONIC, MASS. 4s to 60s.

WM. C. JOHNSON J. TOWNSEND WALKER

Johnson and Walker

COTTON YARNS

All Nos. and Descriptions

Accounts Solicited

P. O. Box 659
Banigan Building, Room 328

PROVIDENCE, R. I.

C. MOORE & CO.,

Manufacturers of

TWINES, THREADS AND YARNS

Jacquard Harness Twines of all kinds on hand and made to order.

S. W. Cor. Fifth and Market Sts., Phila.

ELIAS T. VANDEGRIFT

Successor to Ward & Vandegrift

In the Manufacturing of **SPINDLES,**

For Cotton, Woolen, Worsted, Silk and Flax Machinery. Manufacturers and Repairers. Also Flyers, Steel Caps, Bolsters, Steps, Tubes, Etc.

ELMER, SALEM CO., .. N. J.

EDDY & STREET,

Cotton, Woolen

Yarns and Braids

Worsted, Spun Silk.

PROVIDENCE, R. I.

ESTABLISHED 1885

John Eppler's Machine Works, 629 Filbert St., Phila., Penna.

Manufacturers of

Latest Improved Cop Machinery

of all kinds and

Upright Knitting Machinery for Millinery

Dress and Upholstery Trimmings

GRANT YARN CO.,

COMBED AND CARDED COTTON.

YARNS 40's and above. AND

FITCHBURG, MASS. **WARPS**

The Merwin Paper Company

Hartford, Conn.

Press Papers and Fender Boards

Correspondence Solicited

Mills at Rainbow, Conn. Address Inquiries to Rainbow, Conn.

The Philadelphia Market.

7s and coarser	18½
8s and 9s	19½
10s	20
12s	20½
14s	21
16s	21½
18s	22
20s	22½
22s	23
24s	23½
26s	24
30s	25
40s	30
50s	36

Southern high grade mule yarn:—

Cones.

10s	21
12s	21½
14s	22
16s	22¾
18s	23½
20s and 22s	23¾-24¼
24s	24¾

Southern frame yarn, lower grades:—

6s and 8s	18
10s	19

Eastern cones (high grade quality):—

10s	21½
12s	22
14s	22½
16s	23¼
18s	23¾
20s and 22s	24¼-24¾

Skein yarn (mostly Southern):—

4s and 8s soft	18
10s and 12s	18-18½
14s to 20s	19-20
22s	20½
10/2	19
16/2	20
20/2	22
30/2	24
40/2	30
8/3	17½
7/6	18

Maine, Augusta. The Central Textile Corporation has been incorporated with capital stock of $50,000. M. F. Sheenan is president and treasurer.

*Maine, Bangor. H. S. Sayles, H. H. Patten and Walter L. Piper are interested in the Rivulet Woolen Co., recently incorporated at this place with capital stock of $200,000.

Lowell Crayons Meet the requirements of any cotton, woolen or worsted mill.

May we send samples? 15 colors and white.

Lowell Crayon Co., Original Manufacturers **Lowell, Mass.**

Trade Mark on every box.

JAMES E. MITCHELL CO., COMMISSION MERCHANTS

Cotton Yarns

122-124 Chestnut Street, PHILADELPHIA, PA.
Brown Building, 185 Summer Street, BOSTON, MASS.
25 South Tryon Street, CHARLOTTE, N. C.

CATLIN & CO.,

Cotton Yarns.

345 Broadway, NEW YORK.
67 Chauncy Street, BOSTON.
128-130 Chestnut Street, PHILADELPHIA.
605 Medinah Temple, CHICAGO.

William Whitman & Co.,

Commission Merchants

COTTON AND WORSTED YARNS

BOSTON. NEW YORK. PHILA. ATLANTA.
CHICAGO. BALTIMORE. ST. LOUIS. CHARLOTTE.

A. D. Salkeld & Bro.

COMMISSION MERCHANTS

DEP'T FRED'K VIETOR & ACHELIS

Cotton and Worsted Yarns

366 Broadway cor. Franklin St., NEW YORK

Fred Sternberg & Co.

530 Broadway, - NEW YORK.

MERCERIZED, TURKEY RED, GASSED } **COTTON YARNS.**

LUDWIG LITTAUER,

SUCCESSOR TO

MOELLER & LITTAUER, 109 Greene St., New York

SILK, WORSTED, WOOLEN **YARNS** COTTON AND MOHAIR

Polished Threads and Tinsel. Artificial or Wood Silk. Mercerized, Turkey Red, Fine Gassed Yarns.

SILK MILL, BOONVILLE, N. Y.

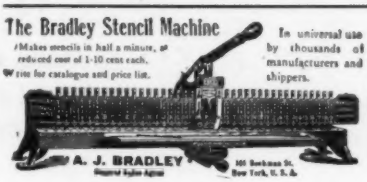
SAVOGRAN

Cleans Wool, Floors, Anything.

INDIA ALKALI WORKS, Boston.

The Bradley Stencil Machine

Makes stencils in half a minute, at reduced cost of 1-10 cent each. Write for catalogue and price list.



In universal use by thousands of manufacturers and shippers.

Also manufacturers of Oil Stencil Board. Write for prices and samples.

S. T. Crocker, Pres. W. F. Stiles, Treas.

ORSWELL MILLS

Fitchburg, Mass.

Capacity, 45,000 Spindles.

HIGH GRADE YARNS

From Egyptian and Peeler Cottons, Carded or Combed, in Chains and Skeins, on Balls, Beams, Spools, Cops, Cones, Tubes, Single or Twisted.

Cotton Yarns

Jenckes Spinning Company
Pawtucket, R. I.

Carded and Combed single and twisted Yarns and Threads from Peeler, Sea Island and Egyptian Cottons, on Cops, Cones and Tubes or in Skeins and Warps. Six Cord Thread Yarns a Specialty **Bleached or in colors**

You Save Enough Insurance to Pay for the Equipment.

So it costs you NOTHING to have the AMERICAN WATCHMAN'S CLOCK. Fully approved by all insurance companies. We equip factories with Fire Alarms, Signals, etc., also Employee's Time Recorders, and Telephone Systems. Electric Time System consists of Master Regulator in office with secondary electric clocks throughout the mill, insuring accurate time. Send for particulars.

Pettes & Randall Co., 150 Nassau St., New York

T. H. S. CONE, Direct Selling Agent
COTTON YARNS
77 Worth Street, New York, N. Y.
Representing
Norwood Mfg. Co., Norwood, N. C.
Linn Mills Co., Landis, N. C.

Century Cotton Mills
Manufacturers of
Hosiery Yarns
Nos. 10s to 30s Sell Direct
South Boston - - - Virginia

Knitting and Weaving YARNS.

Cones, Cops, Warps, Skeins,
Single, Double, Three-Ply, etc.
Peeler, Egyptian, Mixed Colors.
Large Assortment.

EDWARD S. HYDE,
226 CHESTNUT STREET,
Philadelphia, Pa.

Authorized Capital **$100,000**
W. A. Dickel, Pres. and Treas.
Samuel Reid, Vice-Pres. and Sec'y.
I. B. Scovill Gen'l Mgr. and Supt.
INDUSTRIAL MILLS CO.
Jasper and Huntingdon Sts., Phila., Pa.
Manufacturers of
NARROW FABRICS
Special Attention Paid to Plain and Fancy
Spool Tapes and Stay Bindings.

F. W. MAURER & SONS CO.
MANUFACTURERS OF
Fringes, Tapes, Bindings, & Narrow Fabrics
Office and Factory: WAYNE AVE. and BRISTOL STS.
PHILADELPHIA

KROUT & FITE MANUFACTURING CO.,
Manufacturers of
Silk, Cotton and Mercerized Narrow Fabrics
SPOOL TAPES A SPECIALTY.
Telephone Connection. Office and Mill, Allegheny Ave. and Emerald St., PHILADELPHIA.

Pennsylvania, Philadelphia. Work has been started on the new buildings for Thomas Wolstenholme Sons Co., manufacturers of worsted yarns. They will comprise a one-story building, 40 by 200 ft., and another building, 50 by 160 ft., for storage and finishing purposes.

Pennsylvania, Philadelphia. David H. Stroud is reported about to remove his Columbia Rug Mills, containing 8 looms, from its present address at 2707 N. Palethorp St., to 4060 Orchard St., Frankford, where larger quarters will be secured for the purpose of enlarging the plant.

Pennsylvania, Philadelphia. Thomas Davies, Orthodox and Large Sts., Frankford, who has been operating 30 looms on upholstery goods, is about to put part of his equipment of men's wear and dress goods, worsteds. Samples are now being prepared and 10 looms will be started on these goods at once.

Pennsylvania, Philadelphia. Thomas Henry, Jr., is transferring the machinery of the plant to the new two-story building at Willard and Jasper Sts.

Pennsylvania, Philadelphia. A large number of new looms are being added to the plant of John Gay's Sons, Inc., manufacturers of carpets, ingrains, tapestries and velvets, on 250 looms at Howard and Norris Sts.

Rhode Island, Providence. A new 350 h. p. boiler is being installed in the plant of the Paramount Worsted Mills.

Rhode Island, Washington. The Livingstone Worsted Co. will soon start on increasing the capacity of the mills. They will utilize the plant vacated by the Narragansett Worsted Co., installing new machinery.

Rhode Island, Woonsocket. The French Worsted Co. has decided to build three additional stories on their new mill, giving 22,900 more square feet of floor space than was provided in the original plans. They advise that they are forced to make this increase, as recent demands for their yarns have exceeded their expectations.

*Vermont, Bennington. Work is under way on the erection of a new 2-story brick building, 243 by 245 ft., for the Holden & Leonard Co. All the weaving departments will be installed in this new addition, and some new looms added. It is expected to have the new addition ready for occupancy October 1.

Virginia, Fredericksburg. Good progress is being made on the 2-story addition, 125 by 69 ft., under construction for the Melville Woolen Co. The estimated cost is $12,000. Contracts have been awarded for 58 looms and 10 sets of cards.

Rhoads Leather Belting

Have you tried *your* muscle on a slender slit sample of Round Tannate? It gives a surprise. And Tannate is as lasting as it is strong. It is widely recognized as the best round belting on the market. Write for a "pull sample."

Tannate Flat Belt also, is a winner for high speed and hard drives.

Tannate Lace Leather too, has the "Tannate" quality, and we have yet to find its equal.

High priced, but large savers of your money.

J. E. RHOADS & SONS

PHILADELPHIA 12 N. Third St. | NEW YORK 40 Fulton St. | CHICAGO 243 E. Randolph St.

Factory and Tannery, Wilmington, Del.

LINEN YARN IMPORTER.

HUGHES FAWCETT, 115 Franklin St., NEW YORK

Flax, Hemp and Jute Line and Tow Yarns, For Weaving Purposes.

Linen Jacquard Harness Twines, Fine Cotton Harness and Heddle Twines, For Cotton, Silk, Woolen and Carpet Manufacturers.

Correspondence solicited. Samples promptly furnished.

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95 Worth Street, NEW YORK

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YARNS, THREADS, TWINES, CORDS, ROPE

AND MILL SUPPLIES

Anything in the line you cannot get anywhere else apply to us.

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Amsterdam, N. Y.

Cotton Yarns, Cotton Cloth, Silesia, Sateens,

For the Underwear Trade.

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65 Worth Street, New York

MANUFACTURER OF

"LILY" BRAND NARROW FABRICS WEB, TAPE, BINDINGS, ETC.

THE BIAS NARROW FABRIC CO.

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65 Worth Street, New York

Bias and Straight Cut Fabrics and Ribbons.

Embossing and Cutting Customers Own Goods a Specialty.

Pocasset Worsted Company,

Worsted Yarns.

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QUEENSBURY MILLS

Mohair, Lustre and Worsted Yarns

—Single and Two Ply—

Grey—Colors on Mixtures

Worcester, Mass.

French System. Bradford System.

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MANUFACTURERS OF

WORSTED AND WOOLEN YARNS,

Office and Mill, River Ave. and Marlton St. **CAMDEN, N. J.**

Woolen and Merino YARNS

Eaton Rapids Woolen Mills,

EATON RAPIDS, MICH.

Testing of Yarns

Count—Twist—Strength—Moisture

When in doubt apply to

U. S. Silk Conditioning Company

472-474 Broome St., New York

DYE STICKS

Made from high and selected grades of lumber to suit all the different machines, such as Klauder-Weldon, Hussong, Lorimer, etc. Plain or burnt finish as desired. Sticks for all sizes of Hand Kettles from natural water grown cedar.

Dry, Sulphur and Bleach House Poles, Wringing Sticks, etc. from selected lumber or natural cedar

Write for prices.

Frank Bailey, Manufacturer Drying Machines, Dry Poles, Wood Rolls, Trucks and Fans. Cedar Brook, N. J. Works at Braddock.

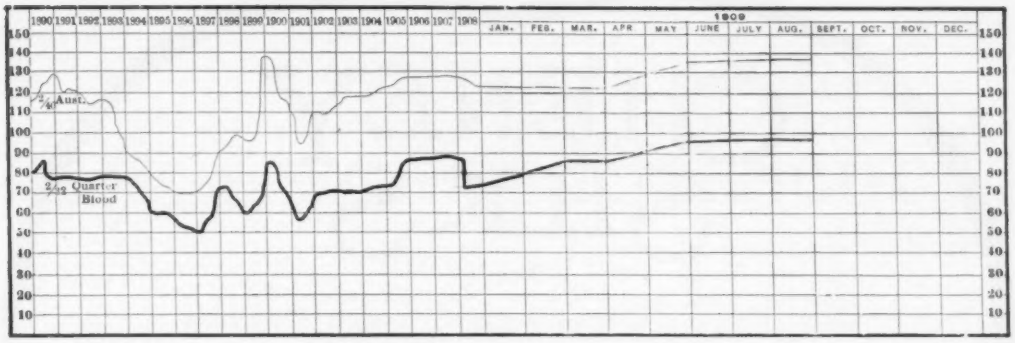

CHART SHOWING RANGES IN THE PRICE OF YARN TO DATE.

The Woolen and Worsted Yarn Markets.

The spinners of French yarns are all busy and will probably remain so for the balance of the year. The counts mostly called for are 2/40 and 2/50 in white yarn and 2/50 and 2/60 in mixed yarns, the filling to go with them being mostly single 20s, 25s and 30s.

The spinner of Bradford yarn, while not quite so well provided for as the French mills, still have sufficient work on hand to keep them from wondering where the next orders will come from. During the past few months 2/32s was the principal count called for, but this number has dropped out somewhat. The leading numbers today are 2/36s and 2/40s with single 20s and 24s for filling.

There are no indications of an advance in the French yarns at the present time as the mills have so much business on hand that they are not quoting prices.

Spinners of woolen yarns are still busy with most of their business coming from the knitting trade, which is buying conservatively but making a steady demand upon the spinner for yarns.

The dress goods trade is now working practically on a hand to mouth basis, not knowing as yet what the trade is going to require. Chevrons and homespuns are almost a dead letter and as some mills banked to a large extent on these cloths there is no doubt but that a lot of them will be thrown into the market shortly to make way for serges for which the spinner is asked to supply yarns in 2/36 and 2/40 in white and grey mixes and on which the mills are anticipating a very heavy demand.

The men's wear mills in most cases are very busy and sold away ahead and are still calling for counts such as 2/30s and 2/40s warp yarns and single 20s, 24s and 30s for filling, which he is using for resist fabrics. Many mills have made up a line of samples of cotton worsteds which are selling fairly well. It is anticipated that there will soon be a greater demand for these fabrics, as the prices of worsted yarns have advanced to such an extent that it is impossible to make up the cheaper grades of all wool fabrics at the price required and the clothier must have something from which to make up garments which can be bought by the masses. The cutting up trade report that they are not only using cotton worsteds but that some very fine effects in all cotton cloths have been put on the market which many buyers order under the impression that they are getting a cloth which is all worsted. We quote as follows:

BRADFORD SPUN YARN.

2/16 Ingrain (black)	48
2/16 Ingrain (light grey)	49
2/16 Ingrain (white)	50
2/12 to 2/16 low common	65-67½
2/12 to 2/20 1/4 blood	84-86
2/20 to 2/24 1/4 blood	90
2/26 to 2/28 1/4 blood	95
2/32 1/4 blood	97½-1.02½
2/20 3/8 blood	1.00
2/26 3/8 blood	1.07
2/30 3/8 blood	1.08
2/36 3/8 blood	1.12½-1.15
2/40 1/2 blood	1.25
2/40 delaine	1/30-1.32
2/50 delaine	1.35½-1.41
2/40 Australian	1.30
2/50 Australian	1.37½
2/60 Australian	1.50-1.52½
2/24 lustre	85
2/28 lustre	87½
2/30 and 3/32 lustre	85-87½
2/36 lustre	95-97½
1/24 worsted and 80s single cotton for raincloths	1.10
1/24 worsted and 120 single cotton for raincloths	1.27

CHENEY SILKS

All kinds of
Spun Silk Yarns in the Gray or Dyed. Organzines, Trams or Singles in the Gray or Dyed, on Cones, Warped or in the Hank.

16 Ounces to the Pound Pure Silk—Fast Colors Warranted

Special Yarns made to order for all sorts of Silks or Silk Mixture Goods, also special silks for electrical uses, insulation purposes, etc. Knitting Silks, Ribbons and Piece Goods for Trimming Knit Goods.

Dress Silks, Foulards, Sashes, Satins, Pongees, Plushes, Linings, Decorative Silks, Velvets, etc.

Manufacturers' orders promptly executed.

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WILLIAM RYLE & CO.,

Foreign and Domestic

Spun Silk Yarns and Noils.

Domestic Thrown Silk of every description. Fine Pure Dye Silks for the woolen trade a specialty. Importers of European and Asiatic Raw Silk.

54 Howard St., cor. Mercer St., NEW YORK.

SAUQUOIT SILK MFG. CO.,

INSULATING AND BRAIDING SILKS.

ORGANZINE, TRAM & HOSIERY SILKS.

Fast Dye Organzines for Woolen Manufacturers a Specialty.

Mills: Bethlehem, Pa., Phila., Pa., Scranton, Pa. New York Representatives, Wm. Ryle & Co., 54 Howard St.—Phila. Office, 4015 Clarissa St., Nicetown.—Chicago Office, 188-190 Market St.—Boston Office, 78 Chauncy St.

Crochet Lace Edgings

Spun Silk, Splicing Yarn, Mercerized Yarns, Cotton Warps, Sewing Threads, Tapes, Braids, Domets, Cambrics, Silesias.

Write for Prices and Samples.

George W. Chapin, 229-231 Church St., Philadelphia.

FRENCH SPUN YARN.

1/20 1/4 blood	96
1/20 high 1/4	1.00-1.02½
1/20 high 3/8 blood	1.07½-1.10
1/20 1/2 blood	1.15-1.17½
1/20 3/8 blood	1.03-1.05
1/30 high 1/4 blood	1.02½-1.05
1/30 3/8 blood	1.07½-1.10
1/30 1/2 blood	1.17½
1/40 1/2 blood	1.20-1.22½
1/50 delaine	1.27½-1.30
1/40 Australian	1.42½
1/50 Australian	1.45
1/60 Australian	1.48
1/70 Australian	1.53½

WOOLEN YARN.

	Wool	Cotton	
2/20 Light Grey Mixed	80%	20%	53
2/20 Light Grey Mixed	90%	10%	55
2/20 Light Grey All Wool			58
2/20 Colored All Wool			65
2/20 Bleached	80%	20%	67
2/20 Bleached	90%	10%	70
2/20 Bleached All Wool			72½
2/25 Light Grey Mixed All Wool			77½
2/25 Bleached All Wool			82%

The Rag and Shoddy Market.

A fair business has been done in both rags and shoddy, the increase being the result of the high prices for wool, which are driving the mills to the use of substitutes. Dealers profess to believe that next year will bring the long expected boom in wool shoddy and waste, and look upon the present activity as a sign of the revival. Desirable lots of wool waste are scarce, and dealers complain that prices paid to the mills are getting so high as to leave no chance for making a turn on the trade. We quote as follows:

SHODDIES AND EXTRACTS.

White yarn, best all wool	46-50
White knit, all wool, best fine	38-40
White knit, No. 2	32-38
Light yarn, extra fine	33-36
New pure indigo blue	30-32½

Merino.

Fine light, all wool	28-31
Medium light, all wool	17-20½
Fine black, all wool	27-29
Fine dark, all wool, best grade	20-23
Medium dark, all wool, No. 2	17½-18½
Red knit stock, strictly all wool	21-24
Red flannel, all wool	26-27
Dark blue for hosiery, strictly all wool, No. 1	21-25
Dark blue for hosiery, not all wool, No. 2	17-20

WOOLEN RAGS.

Fine merchant tailors	9-10
Choice light colors	15-18
Browns	11-15

Coal Efficiency

We have published a little booklet on

The Purchase of Coal

which explains how other people are saving money by

Modern Methods

of buying and using

COAL

May we send you a copy?

Arthur D. Little, Inc.,

Laboratory of Engineering Chemistry

Fuel Engineering Department

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TRADE MARK REGISTERED IN
NON-FLUID OILS
UNITED STATES PATENT OFFICE

-lasts six to eight weeks in comb-boxes of cards. Comb-boxes run much cooler and there is no spattering or dripping to injure card clothing or goods in drawing cans.

This same grade for general use in spinning and mule frames, etc., outlasts other lubricants, gives cleaner service and requires less attention.

Non-Fluid Oils are used with greater economy and cleanliness than fluid oils because they feed from oil cans one drop at a time instead of wasting in a stream.

Free sample upon request. Address Dept. H.

ORIGINATORS AND SOLE MANUFACTURERS

NEW YORK AND NEW JERSEY LUBRICANT COMPANY

165 Broadway, NEW YORK CITY

EDWIN F. SCHOFIELD

Cotton Waste

IMPORT and EXPORT

45 S. 3rd St. Philadelphia

William B. Charles,

Amsterdam, N. Y., U. S. A.

Cotton and Wool Wastes

COTTON YARNS

Contracts made with Cotton and Woolen Mills for Yearly Waste Production. Correspondence solicited. Shepperson's Code, 1878. Cable Address "Charles."

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Established 1860—Incorporated 1893.

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COTTON, EGYPTIAN PERUVIAN

American Long Staple a Specialty. Shipments direct to mill from Egypt, Peru and all American Southern Points.

CHICOPEE, MASS.

Cotton Waste Purchased on Yearly Contract from Mills.

Blacks	10-13
Fine blues, plain	**10-12**
Fine dark	10-13½
Medium dark	6-10
Worsteds.	
Blue	15-17
Black	19-20½
Serges.	
Black	11-12½
Blue	14½-15½
Flannels	
New scarlet	18-20½
New blue	17½-20½
Cloakings	4½-7½
SOFTS AND KNIT STOCK.	
Soft woolens, best	5½-7½
Old white flannels	12-13½
Old red flannels	**12-13**
Old blue flannels	5-7½
Old plaids	**7-10**
White stockings	20-23
White hood stock	20½-24
Clear hoods	10-12

Dyestuffs and Chemicals.

Acids.

Acetic, 100 lbs.	2.27-2.35
Citric, domestic	38½-50
Oxalic	6-7
Sulphuric, 66°, 100 lbs.	1.00-1.10
Muriatic, 18°	1.16-1.26
Tartaric crystals	26-27½

Miscellaneous Chemicals and Dyestuffs.

Acetate of lime, gray, 100 lbs.	2.00-2.06
Alum, lump	1.75-1.85
ground	1.85-2.00
powdered	2.85-3.25
Aqua ammonia, 26°	3-7
Ammoniac sal. gray	
Borax, bbls.	4½-8½
Brimstone, crude, ton	27-51
Copperas	66-80
Cream tartar, crystals	22-25
Fuller's earth, powdered, ton	22-23
Glauber's salt	65-80
Potash, chlorate, crystals	9-11
powdered	11-14
carbonate	6-8
Soda, bicarbonate	1.60-1.75
Soda, caustic, domestic, 60 per cent.	1.77-1.90
Sal., American	72-86
Vitriol, blue	5-7½
Acetate of soda	4-7

J. LEE NICHOLSON, Pres. A. J. STERN, Vice Pres.

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Best known Cost Specialists in the United States

Present condition analyzed and Defects corrected. Cost Systems Devised and Installed. Correspondence invited.

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The HOME INSURANCE COMPANY NEW YORK

Organized 1853. MAIN OFFICES, 56 CEDAR ST.

Cash Capital, $3,000,000.

ASSETS January 1, 1909	$24,856,499
LIABILITIES (Including Capital)	14,173,678
RESERVE AS A CONFLAGRATION SURPLUS	800,000
NET SURPLUS OVER ALL LIABILITIES AND RESERVES	9,882,821
SURPLUS AS REGARDS POLICY-HOLDERS	13.682,821
Losses Paid Since Organization Over	$115,000,000

IDEMNITY
For loss of
Profits
Commissions
Use & Occupancy
on acceptable
Textile Plants
at the
Minimum Rate

IS prepared to entertain liberal lines on Sprinkler-Equipped and Modern Improved risks generally, having a special department for the consideration of such business.

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AREUNAH M. BURTIS, Secretary.
CHARLES L. TYNER, Secretary.
HENRY J. FERRIS, Asst. Secretary.

Acid, picric, best crystals	26-50
tannic, commercial	30-41
Albumen, egg	61-70
blood	25-35
Alizarine, red	19
Aniline, oil	10-13
salt crystals	14
Bichromate of potash, American	9½-10½
Bichromate of soda	8-11½
Bisulphite of soda	3-5
Cutch, mat	5-8
Dextrine, imported potato	6½-8½
Divi-divi, ton	42-45

Pennsylvania, Lehighton. Howard A. Diefenderfer has contracted with R. H. Rathbun of Allentown, for the erection of a mill at the corner of Sixth and Cypress Sts. The new building will be 2 stories high, 50 by 100 ft.

Pennsylvania, Milton. The Sydney H. Souter Silk Co., manufacturers of dress silks, are about to place an order for 50 additional looms and make other additions.

Pennsylvania, Philadelphia. The Industrial Mills Co. have taken in another floor in the mill at Jasper and Huntingdon Sts., in which they install 10 additional looms, which will make their weaving capacity 60 looms in all. They report being very busy on silk, cotton and mercerized narrow fabrics and plain and fancy spool tapes, for which they have received many orders.

Mr. Schoeller, overseer of dyeing at the Integrity Dye Works, Philadelphia, has taken a position with the Austin Dye Works, South Bethlehem, Pa., where he will have full charge of the plant.

Peter Bowman has been appointed overseer of weaving at the Oakland Mfg. Company, Reisertown, Md., succeeding Oliver Ainley, who resigned.

Howard Emslie, designer at the Saranac Mills, American Woolen Company, Blackstone, Mass., has resigned to accept the position of superintendent of the Quaker City Mills, Philadelphia, Pa.

Charles M. Davis has been appointed designer at the Saranac Mills, American Woolen Company, Blackstone, Mass.

Kirk Verity has accepted the position as designer at the French River Textile Company, Mechanicsville, Conn. He comes from Knoxville, Tenn.

M. A. Kehoe, superintendent of the Missouri Mills, Manayunk, Philadelphia, Pa., has severed his connection with that company.

R. W. Barber has accepted the position as superintendent of the Chas. M. Davis Company, Northfield Falls, Vt. He comes from North Billerica, Mass.

The WM. H. LORIMER'S SONS CO.,

Manufacturers of

MERCERIZED YARNS

FOR ALL PURPOSES.

MERCERIZERS AND DYERS.

New York Office:
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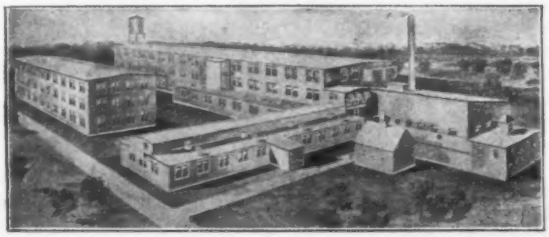
Ontario and Lawrence Sts.,
PHILADELPHIA, PA.

PETER B. MCMANUS, Pres. and Treas. EDWARD J. MCCAUGHEY, Secy. and Mgr. JOHN MCMANUS, Vice-Pres.

HOME BLEACH AND DYE WORKS, Inc.



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Cotton Yarns

in skein, and long and short

CHAIN WARPS

Fast Colors a Specialty.

Daily Capacity 30,000 lbs.

Fast Colors and Black for Worsted Trade.

Office and Works, Pawtucket, R. I.

Established 1881.

GLOBE DYE WORKS CO.,

Successors to R. Greenwood & Bault

DYERS BLEACHERS AND **MERCERIZERS**

OF COTTON WARPS AND SKEIN YARNS

Globe Bleach and Dye Works,
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140 Chestnut St., PHILADELPHIA.

JOHN F. DAVIDSON, Orianna Bleach Works

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Of Turkish Towels, Cotton Yarns, Underwear and Tapes

2558-2564 North 3d Street, 2557-2563 Orianna Street, PHILADELPHIA
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THE PEERLESS COMPANY,

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Dyers of Skein Silk

FOR ALL TEXTILE PURPOSES

Fast Colors on Silk for Worsted Manufacturers.

Pure Dye and Weighted. Bright and Souple.
Dyers of Peerless Black on Artificial Silk.

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Bleachers and Dyers of COTTON YARNS and STOCKINET

Office with Blodgett & Orswell Co., Manufacturers of Glazed Yarns.

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CONE AND TUBE WINDING

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FIRTH & FOSTER CO.

Dyers and Finishers

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Dyeing and Finishing of Piece Goods Exclusively, such as Wool Armures, Prunellas, Satins and Henriettas, Panamas, Poplins, Serges and Cheviots. Mohairs, Bradford Finish, in Fancy and Solid Colorings. Also Suitings and Cloakings.
Specialty in the Treating of Silk and Wool Fabrics, such as Eoliennes, Crepes and Henriettas and all high class wool tissues like Batiste, Voiles and Foules. Also, Cotton and Wool Goods, Mohair Linings and Lastings.

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Sheetings, Shirtings, Lawns, India Linons. Everything in White Goods.

John MacManus, Superintendent.

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Brightest Blues on the Market

Cross Dye Blacks BX & RX. Cross Dye Yellow D.
Cross Dye Browns 2R, 4R, 6R, D.
Fast to Milling, Light and Cross Dyeing.

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Dyestuffs
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Sole Agents for America
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"RIO DE ORO" Brand Logwood Extract

Headquarters for Logwood—Crystals, Hermatine Paste
Fustic Crystals, Fustic Paste, Quebracho, Sumac

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Hudson Terminal Building

DYE STICKS

Drying and Sulphur House Poles of Natural Round Water Grown Cedar for **Cotton, Wool, etc. Special Hardwoods** in Standard No. 1 and "Selects" without knots, grades, for **Silk Dyeing.** Manufactured by, prices and all information from

E. M. HAEDRICH,
601 Mariner and Merchant Bldg., ... Philadelphia

T. HOPKINSON, Prop'r and Mgr. G. W. HOPKINSON, Supt.

HOPKINSON DYEING & TEXTILE WORKS

Bleachers and Dyers of
Cotton Skein Yarns, Tie Bands, Twines, Braids and all Narrow Fabrics. Cone Winding or Tubing to Order
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259 Forest Street, FALL RIVER, MASS.

ARRANGE FOR THAT TRIP WEST VIA BOSTON AND MAINE RAILROAD AND AVOID INCONVENIENCE

COMFORTABLE THROUGH TRAIN SERVICE FROM

BOSTON
TO
CHICAGO, ST. PAUL, MINNEAPOLIS, DETROIT, TORONTO, MONTREAL.

***10.00 A.M.** Through train; Sleeper from Boston to St. Paul and Minneapolis. Cafe Car to Montreal. Sleepers from Montreal to Toronto, Detroit and Chicago. Tourist Car Boston to Vancouver, Wednesday only.

CHICAGO, TORONTO, MONTREAL.

***11.30 A.M.** Through train; Cafe Parlor Car to Montreal. Sleeper Boston to Toronto and Chicago. Tourist Car Boston to Chicago, Monday, Wednesday and Friday.

ST. LOUIS, CHICAGO, CLEVELAND, BUFFALO, DETROIT.

***12.30 P.M.** Through train with Dining Car to Rotterdam Jct. Sleepers Boston to Buffalo, Detroit, Chicago and St. Louis. Tourist Car Boston to Chicago daily except Sunday.

CHICAGO, DETROIT AND BUFFALO.

†**6.19 P.M.** Through train with Dining Car to North Adams. Sleeper Boston to Buffalo, Detroit and Chicago.

CHICAGO, CINCINNATI, CLEVELAND, BUFFALO.

***4.00 P.M.** Through train with Dining Car to Greenfield, Mass. Sleeper Boston to Buffalo, Cleveland and Chicago.

MONTREAL.

†**7.15 P.M.** Through train; Sleeper Boston to Montreal.

‡**7.45 P.M.** Through train; Sleeper Boston to Montreal.

CHICAGO, DETROIT, TORONTO, MONTREAL.

***7.30 P.M.** Through train; Sleeper Boston to Montreal. Sleeper Montreal to Toronto and Chicago.

***8.30 P.M.** Through train; Sleeper Boston to Montreal. Sleeper Montreal to Toronto, Detroit and Chicago.

* Daily. † Daily except Sunday. ‡ Sunday only.

Time Tables, Rates and other information gladly furnished on request. Call on, or write, City Ticket Agent, 322 Washington St., Boston, or Ticket Agent, North Station.

D. J. FLANDERS, P.T.M. C. M. BURT, G.P.A.

SILK MILL SUPPLIES

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Also Power Transmission Supplies for General Mill Use.

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Allentown Reed, Harness and Mill Supply Co., Allentown, Pa.

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Manufacturer of all kinds of SPINDLES, FLYERS, RINGS, TUBES, CAPS, etc., for Cotton, Silk, Flax, Woolen and Worsted Machinery.

Roving Spindles and Flyers a Specialty. Light Forgings.

REPAIRING OF ALL KINDS.

E. B. BADGER & SONS CO.
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COPPERSMITHS

STEAM JACKET KETTLES

Guaranteed to stand 150 lbs. cold-water test

Equal, if not Superior, to any in the market.

66 Pitts St.
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It Attracts Universal Attention Because it is THE BEST

BADGER'S
Fire Extinguisher

Has taken the lead in the United States, and is everywhere recognized for its efficiency. After competitive tests, lasting more than one week, THE UNITED STATES GOVERNMENT placed an order for 1,200 of

BADGER'S The Latest and Most Approved Automatic, Chemical, Hand Fire Extinguisher Made

Badger Fire Extinguisher Co.
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NEW ENGLAND BUTT COMPANY,
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ALL STYLES AND KINDS FOR FLAT AND ROUND BRAIDS.

SOLID SASH AND CURTAIN CORDS,

SHOE AND CORSET LACES, BANDING

AND ALL BRAIDED FABRICS.

THE SOLWAY DYEING & TEXTILE CO.,
PAWTUCKET, R. I.

Dyers, Bleachers and Mercerizers

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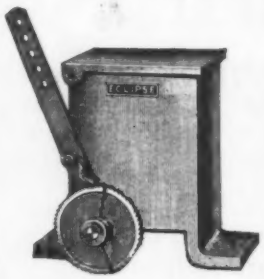

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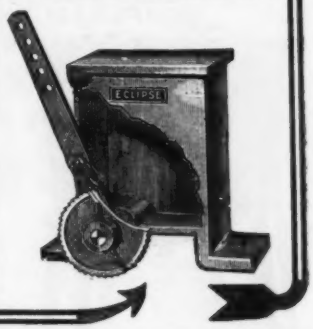

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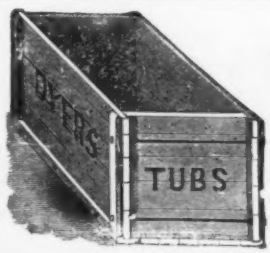

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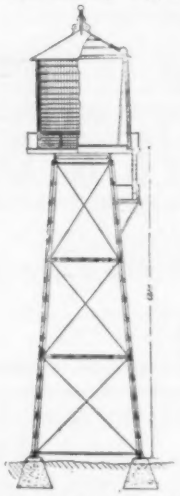

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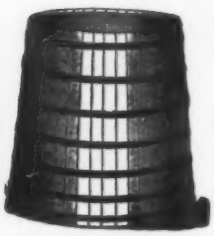

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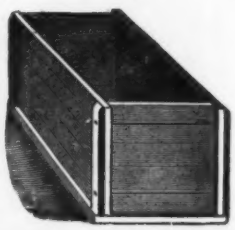

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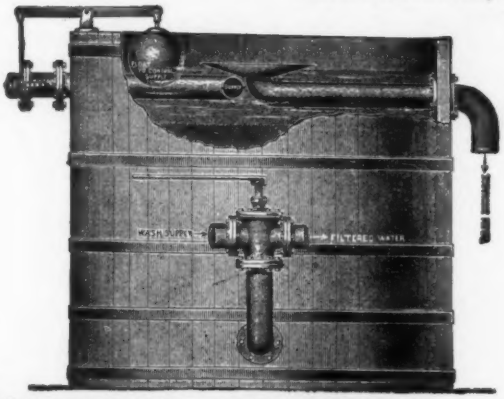

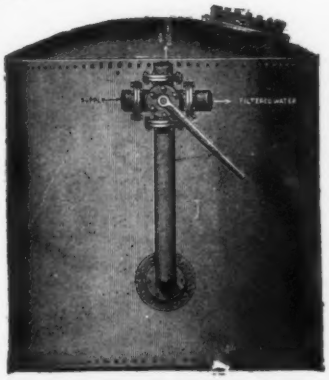

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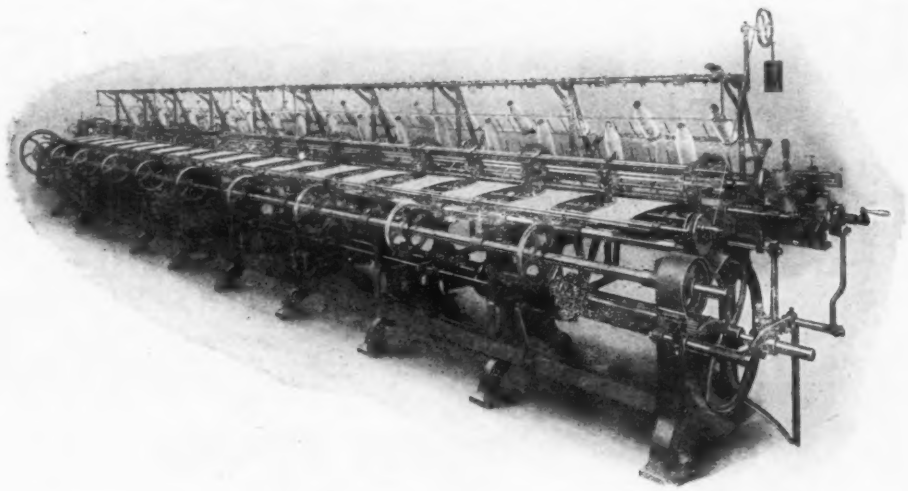

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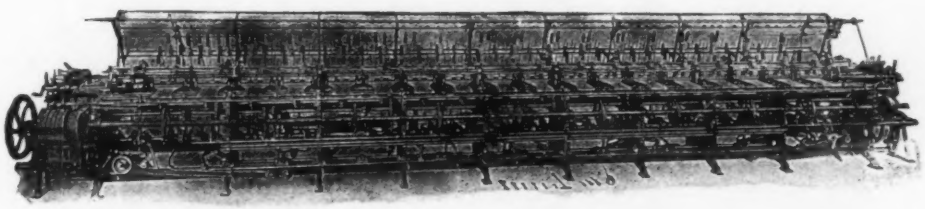

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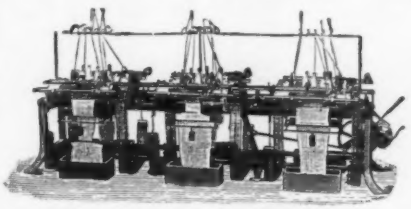

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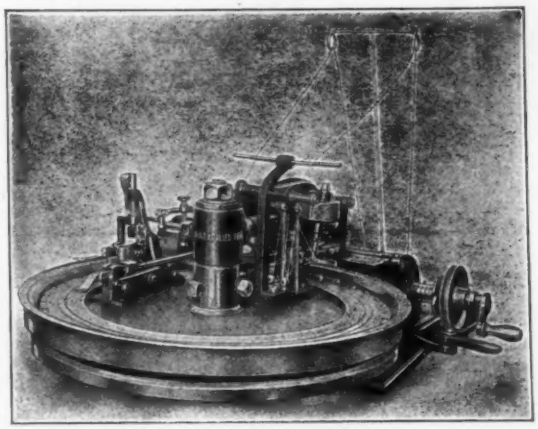

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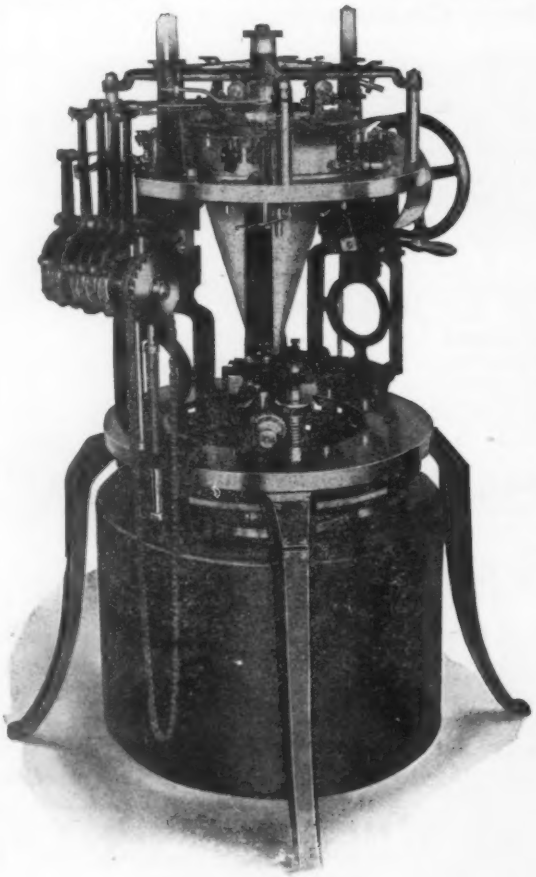

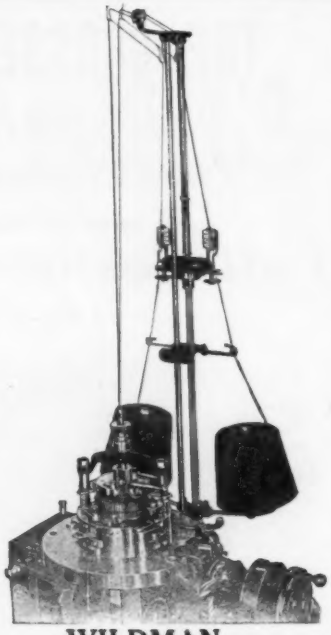

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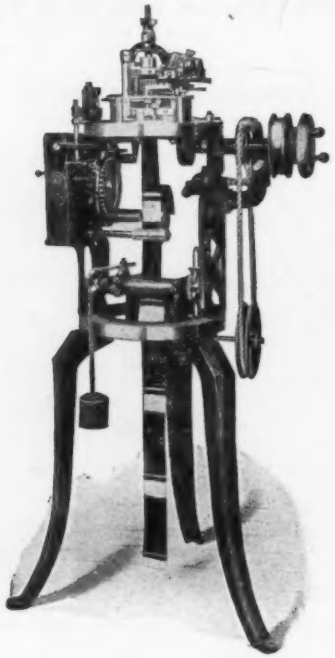

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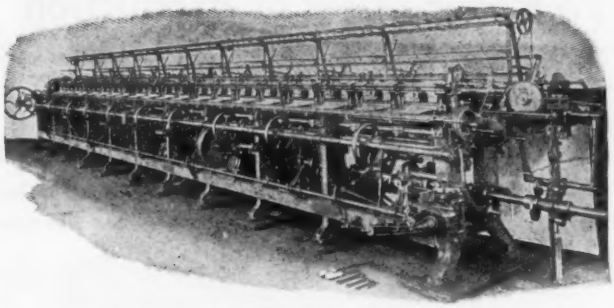

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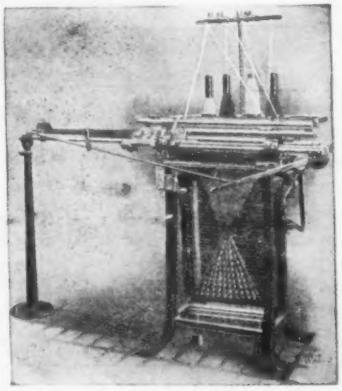

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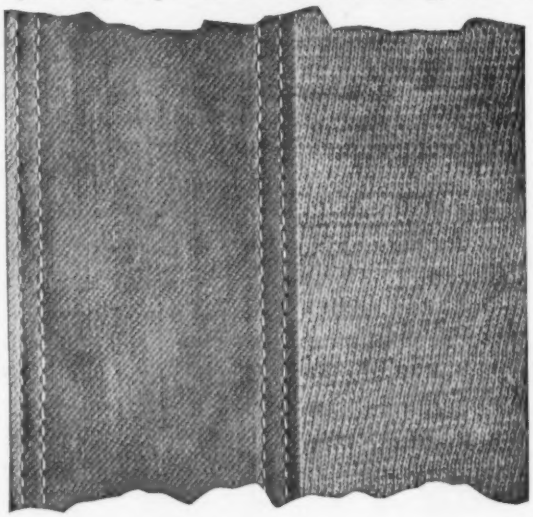

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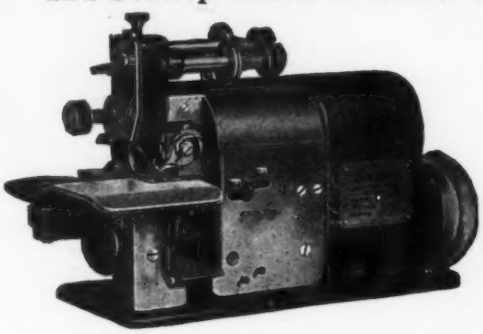
High Speed Overseaming, Overedging and Scallop Stitch Machines are



***OUR STYLE 60 MACHINE** for Trimming and Overseaming in one Operation produces the strongest, best Seam and does it with the greatest economy.*

USE STYLE 18 for Horse Blankets. STYLE 17 or 22 for Bed Blankets. STYLE 35 B SHELL, for Necks and Fronts of Rib Goods, produces the most showy, substantial finish.

Send for Catalogue and Samples.

THE MERROW MACHINE CO. HARTFORD, CONN.

Knickerbocker Building, Sixth and Arch Sts., Phila. 467 Broadway, cor. Grand St., N.Y. 237 Market St., Chicago, Ill.

EXCELSIOR KNITTING MACHINE MFG. CO.

Meadow and Washington Streets

ALLENTOWN, PENNA.

BUILDERS OF

Full Automatic Knitters

With or without **Transferring Device**

ALL SIZES AND GAUGES, 2 1-4 INCH TO 4 INCH

Circular Knitting Machine

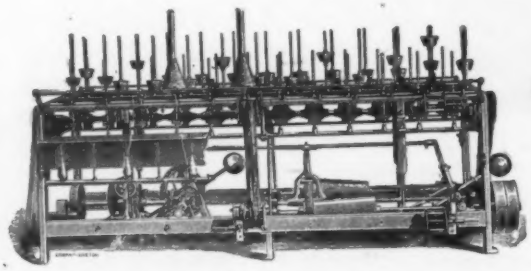
Plain or Full Automatic

with stop motions complete.

4 to 24 Feeds

FOR RIBBED UNDERWEAR

Automatic Racking and Striping Machines for Sweaters, Cardigans, Collarettes, Cuffs and Anklets.



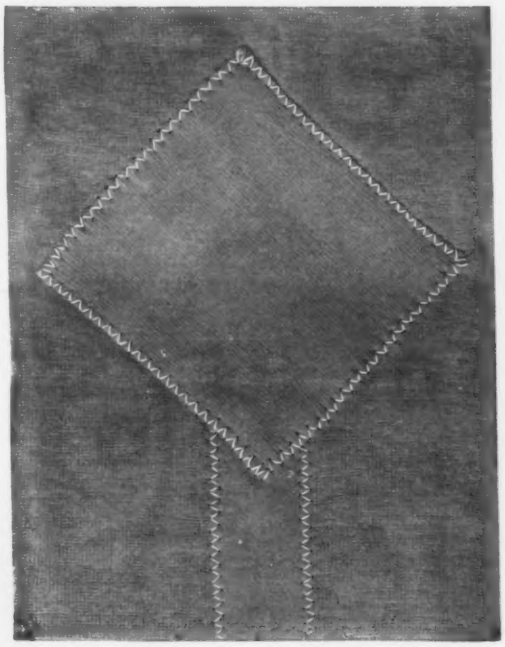
THE WELL KNOWN

ABEL WINDERS, SEAMERS and LOOPERS

ARE ALSO BUILT BY US

LEIGHTON MACHINE CO., Manchester, N. H.

Money Makers for Knit Goods Manufacturers



SINGER MACHINE No. 107-W-1 is for Overseaming or Zig-Zag Stitching and can be operated at a speed of more than 2500 stitches per minute. It is particularly well adapted for sewing Knit Goods, such as applying the patch to the seats of men's drawers and similiar operations where a lock-stitch is essential.

SINGER MACHINE No. 68-20 makes an Ornamental "Budding" Stitch of design similiar to a fern leaf, consisting of 48 stitches, the thread being trimmed both top and bottom, making the design complete in one operation. It excels for Finishing Seams and Ornamenting Knit Underwear.

Free Samples of Work Furnished on Application

Singer Sewing Machine Co.

Room 3613, Singer Building, New York

Some Wonderful Tests
SPARTAN BELTING

Consider this new belting from *your* standpoint. Apply its possibilities directly to *your* problem.

Consider, first, whether or not your present belting is *all* that you want it to be.

Then consider whether the progress that has been made in machinery making might not likewise be made in belt manufacture.

And, if so, whether a belting which represents a big step forward is not worth the stamp it costs to investigate.

Because, if our new processes and methods of tanning and treating leather are productive of a radically better belting than you have ever used, it will *pay* to investigate.

Your belting problem you have with you always. Its solution means more power delivered, at less cost, with more certainty.

Spartan Belting is simply the result of radically different methods applied to belt making, an upsetting of customs and an upheaval of the ordinary. It is, without exception, the most thoroughly satisfactory belting ever made.

It withstands the action of hot or cold air and water, steam, oil, gases, and acid fumes. It has a greater pliability and a stronger grip than any other. It will outwear any other.

For the proof of the pudding witness these tests: We put a Spartan Belt on one side of the knife of a Whitening machine and Chrome on the other (high speed over small pulleys). The Spartan outwore two chrome belts and the third was nearly gone when the Spartan gave out. We had a composite belt made of lengths of Spartan, oak, raw hide, etc., for use on a multiple boring machine (again high speed over small pulleys)—the other sections had been replaced two or three times before the Spartan gave out. We installed a Spartan Belt where it ran through a box into which live steam was discharged at intervals through a pop valve, and after six months it was still on the job.

We have run a Spartan Belt in the open, transmitting power from one building to another adjacent, the belt absolutely unprotected from the weather, and it has made good. We have a Spartan Belt running in a wheel pit frequently flooded, and where it runs within a few inches of a big 6-inch steam main, and that, too, is making good.

There are other instances. We'll send them to you. We'll send a belt on trial. We'll *prove* our claims if you'll get in touch with us.

To be posted on this new belting write today for the "Spartan Belting" Book Sent Free

GRATON & KNIGHT M'F'G CO.

WORCESTER, MASS.

NYE & TREDICK CO.

718-720 Cherry Street,
PHILADELPHIA, PA.

Circular Rib Knitting MACHINERY

For making Ribbed Underwear, Combination Suits, Sweaters, Cuffs, Shirt Borders, Hosiery, etc. Correct Construction, Excellence and Durability.

LATEST IMPROVEMENTS
QUALITY OF FABRICS AND PRODUCTION
UNEXCELLED

NYE & TREDICK CO.

"Nothing so Good as a Good Finish"

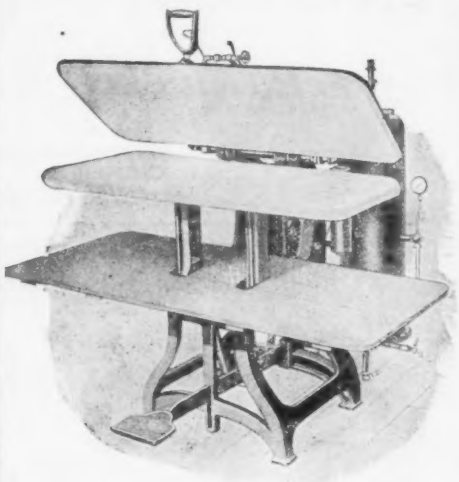
We are speaking of the finish on Knit Goods as produced by the

Hoffman Press

Presses a full garment in one operation, leaving it smooth and of fine finish.

Will not break buttons.

Floor space required—4 feet square.



The "Hoff-Man" F.

Write us for prices, particulars and illustrated catalogue

United States Hoffman Company

229 Temple Street

SYRACUSE, N. Y.

The Invincible

Full Automatic.

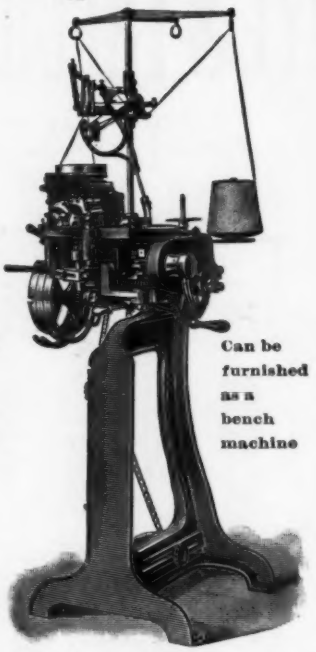
"The KNITTER that KNITS"

THE LARGEST PRODUCER OF PERFECT WORK.
SIMPLE, POSITIVE AND EASY TO OPERATE.

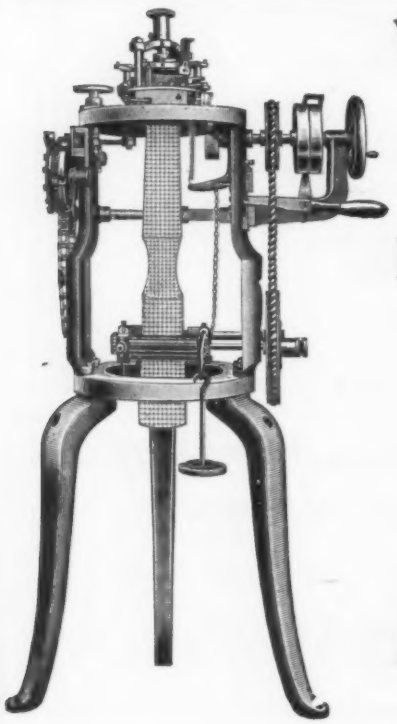
E. JENCKES MFG. CO.

Pawtucket, R. I.

PHILADELPHIA OFFICE,
101 North Sixth St.



Can be furnished as a bench machine



You Will Increase Output

and

Decrease Your Expenses

By Using Our High Speed

Rib Knitting Machinery

Our latest models will cause fewer seconds, less breakage of needles, less jar, wear and tear, than machinery designed for lower speed.

While effecting this saving, it decreases your production cost and so increases your profit.

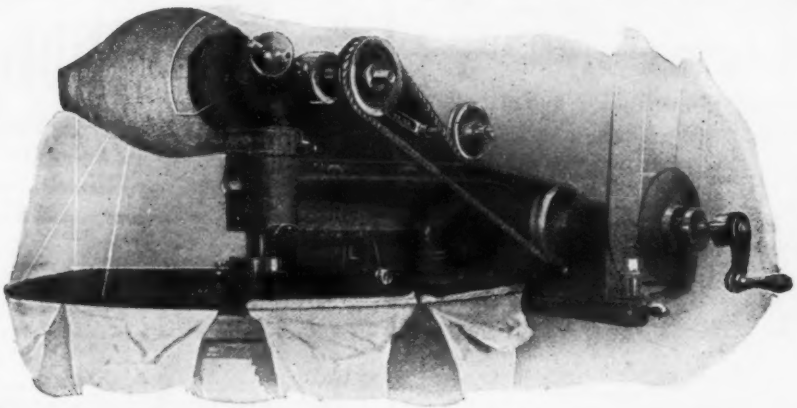
The same economies result from the use of our Stripping and Designing Machines for Fancy Golf Stockings, Bathing Suits, Sweaters, Toques, Toboggan Caps, Skirts, etc.

STAFFORD & HOLT,

LITTLE FALLS, N. Y.

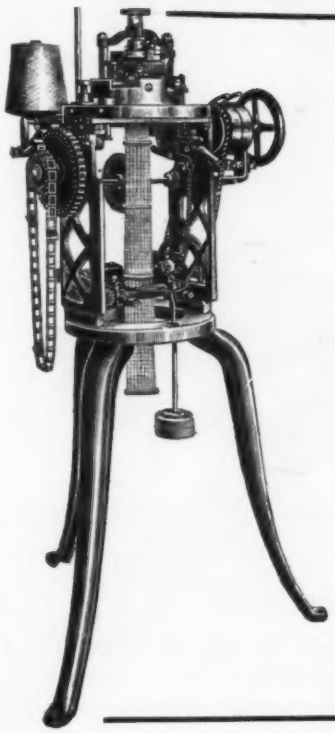
The "RAVLWIND" Saves Hosiery Manufacturers

$2 to $3 a Week on Each Looping Machine



It does away with hand raveling and winding, and is entirely automatic. Has increased the production as much as 40%. The "Ravlwind" folder gives other facts that will surprise you—send for it.

Arguto Oilless Bearing Co., Wayne Junction, Phila., Pa.



Expense-Reducing

Knitting Machinery

FOR

Hosiery, Underwear, Sweaters, Toques, etc.

You can economize on production costs by using our

Improved Automatic Ribber

AND

Full Automatic Knitter

Estimates Furnished for Complete Equipments
Send for Particulars.

H. Brinton Co.

213-215 Race St., Philadelphia, Pa.

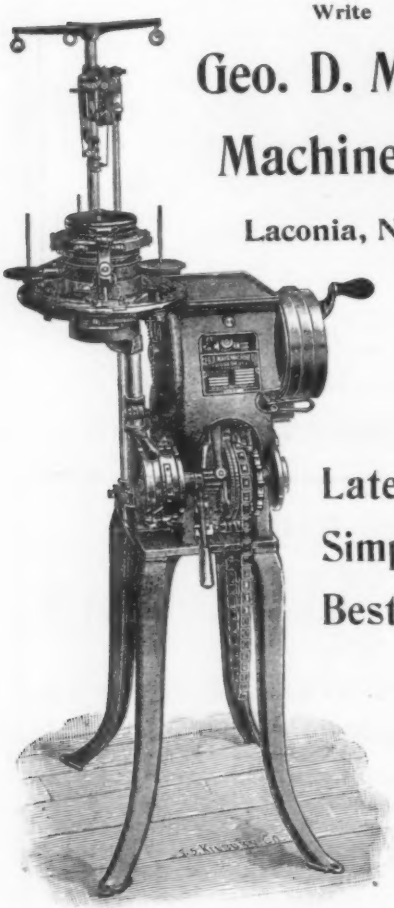
If You Want

Largest Production For Least Money

Write

Geo. D. Mayo Machine Co.

Laconia, N. H.



Latest
Simplest
Best

MAYO'S

New Full Automatic Knitter

PHILADELPHIA OFFICE
KNICKERBOCKER BLDG., COR. SIXTH AND ARCH STS.,
B. M. DENNEY, REPRESENTATIVE.

GENERAL MACHINE WORKS

YORK, PA.

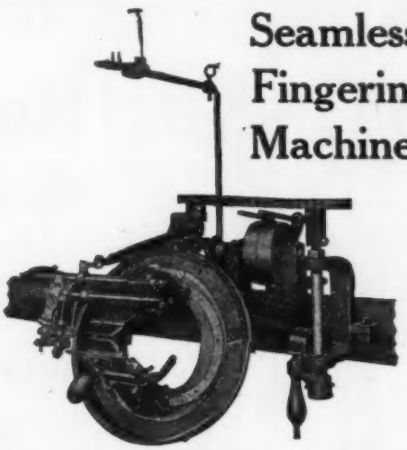
Manufacturers of

Ribbers

for Hosiery, Underwear and Gloves. Splicers and Sleevers

We carry a large stock of needles and can supply your wants promptly. We are prepared to cut cylinders and dials promptly and accurately. We develop and market new ideas for any one. Your inquiries will be appreciated.

Seamless Fingering Machine



Knit Glove Manufacturers

If you want to be up to date, ask us for particulars of this machine. Indorsed by leading manufacturers.

James Leckie & Son,

821 N 13th Street, Phila, Pa.

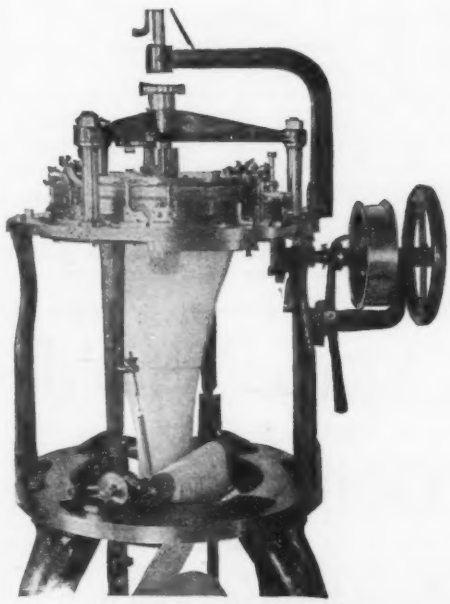
Established 1870.—Incorporated 1890.

CRANE M'F'G. CO.

LAKEPORT, N. H.

Manufacturers of

Spring and Latch Needle Machines for both rib and plain work, producing a great variety of fabrics. Patent removable hardened Wing Burr Wheels.



SPRING NEEDLE RIB MACHINE

CASE BROTHERS

INCORPORATED

Highland Park, Conn.

Manufacturers of

RAG PRESS BOARDS

Especially Adapted to

Hot Pressing

Also

Fender Boards

Medals awarded at Paris and Melbourne Expositions.

Jacquard Cards

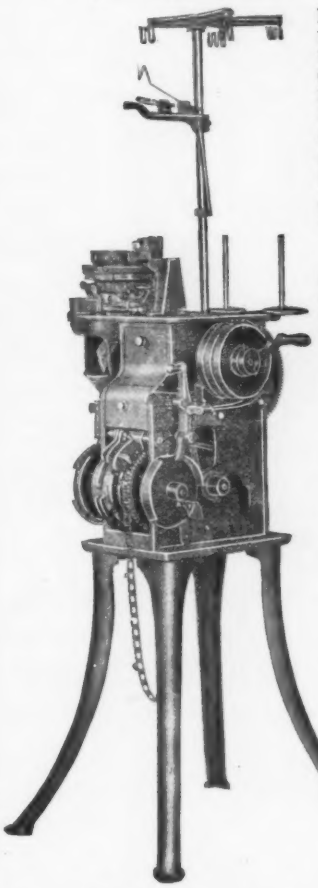
of all Grades for Fancy Weaving. Accurately Cut to Any Size.

"THE BANNER"

Hemphill's Latest

A FULL AUTOMATIC MACHINE

Specially adapted to



Manufacture Hose with Linen or Mercerized heel or toe.
Also for

Plaited Goods

and

String Work

High Splice

and

Double Sole

Largest Production

More Yarn Changes

Highest Speed

Simplest

Least Repairs

Produces a Superior Quality of Work.

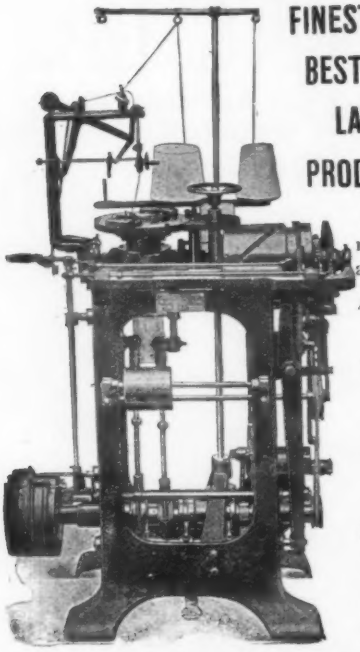
MANUFACTURED BY THE

Hemphill Mfg. Co.

131 Clay Street, PAWTUCKET, R. I.

"NATIONAL"

Stands for



FINEST GAUGES
BEST FABRIC
LARGEST
PRODUCT ON

Greatest Variety of Laces and Novelties.

Allautomatic.

Lowest Cost for Operating

Also

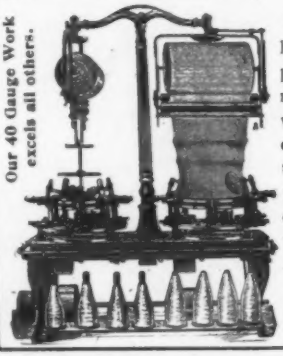
Rib Knitting Machinery, Overedge, Crochet and Shell Stitch.

NATIONAL AUTOMATIC KNITTER CO.

1028 Susquehanna Avenue. PHILADELPHIA, PA.

We are the Oldest Manufacturers

of this Design of Spring Needle Knitting Machine in this Country



Our 40 Gauge Work excels all others.

40 years' experience

Do not be misled by people who became manufacturers in 1903 without any previous experience who are trying to represent that they are the oldest manufacturers. Investigate. Call and see our fine gauge work.

Robt. W. Gormly & Co.
Troy, N. Y.

The New Boss Seamless Knitter

Do you want the biggest production with the least menders, for the least money? If so, write to the Boss Knitting Machine Works for their circular with full directions. There is no cylinder to be handled. We use only one cylinder and transfer device for half hose or ladies' hose. This machine beats them all. Has no equal for simplicity and durability. Makes 300 revolutions per minute. Built in sizes from 2¼ to 5½; from 40 to 224 needles. Automatic in heel and toe. It is the strongest built knitter on earth.

Send for prices and particulars.

THE BOSS KNITTING MACHINE WORKS,
Cor. Elm and Reed Sts., Reading, Pa.

"Acme" and "Hemphill"

SEAMLESS HOSIERY

Knitting Machines

built by

Mayo Knitting Machine & Needle Company

Franklin, N. H.

Answer all purposes in the *most reliable*, *up-to-date*, and *economical* manner. Write us for full particulars.

Manufacturers like our Latch Needles

because we make a superior grade of needles.

Philadelphia Office, Knickerbocker Bldg.

STANDARD MACHINES FOR HOSIERY MAKING

The STANDARD F, with attachments, can make any and all of these fabrics:

Plain Goods
Plaited Work
Three Color Stripes
Tipped Heel and Toe
White Foot
Changed Heel and Toe
Garter Top
Loopers Slack Course

Most Stockings—Best Fabrics—Longest Life

Standard Machine Company

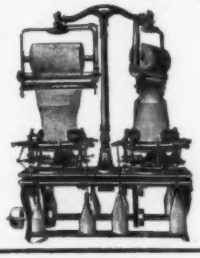
OFFICE AND SHOW ROOMS

330-340 North 12th St., Philadelphia

We Are the Oldest Manufacturers
IN THE WESTERN HEMISPHERE
Of Circular Spring Needle Loop-Wheel Knitting Machinery.

TOMPKINS BROS. CO., Troy, N.Y.

We submit the following extract from the sworn testimony of R. W. Gormly, in U. S. Circuit Court, Northern District of New York, in equity, No. 6764:
Cross Question 123. How long have you been a manufacturer of knitting machines? Answer. I started in this business about the middle of May, 1900.



Tompkins Knitter

This design was adopted in 1875.
BUSINESS ESTABLISHED in 1846, before ROBERT W. GORMLY Was born, according to his testimony in the case above cited.

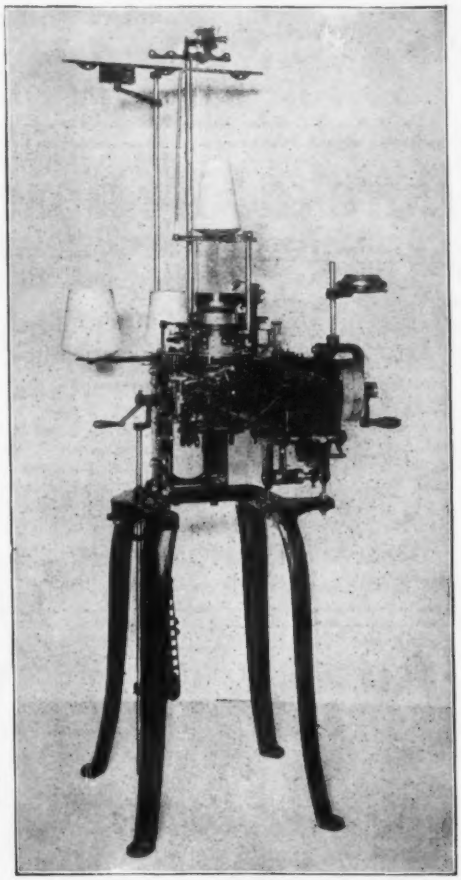
Full Automatic Knitters

For Ladies', Half Hose and Footing, also for

Ladies' Split Sole and Lace Hose

Full Fashioned Legger and Heeler for Full Fashioned Hose.

Measure lengths like a Rib Frame.

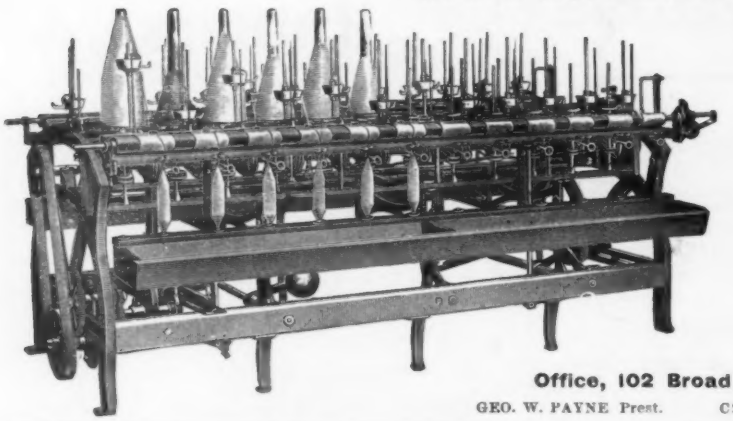


Paxton & O'Neill

537-41 North Third Street, Philadelphia.

OVER 1,900 PAYNE WINDERS IN USE

By Hosiery Manufacturers,
Wind for Cop, Skein or Bobbin.



Improved

Upright Spoolers,

To Spool from Cop, Skein or Bobbin.

Doubling Spoolers for doubling 2, 3, or more ends into one.

Upright Quilliers, Quill from Cop, Skein or Bobbin.

Ring Dresser, Spooler and Reel Spindles, Cop Skewers, Warp, Spool, Spooler, Guides, Bolsters and Stops Made and Repaired at Short Notice.

GEO. W. PAYNE CO.,

[Est. 1865. Inc. 1903.]

Office, 102 Broad Street, Pawtucket, R. I.

GEO. W. PAYNE Prest. CLINTON F. PAYNE, Sec'y. and Treas.

Eureka Fire Hose

THE BEST FIRE HOSE MADE.

(Trade Mark.)

For use in

Cotton Mills, Woolen Mills and Factories.

Seamless Woven and Rubber lined EUREKA COTTON HOSE, has no equal. Send for circular and testimonials.

Awarded Gold Medal at the St. Louis Exposition, 1904.

EUREKA FIRE HOSE MFG. CO.

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Diehl Manufacturing Co.,

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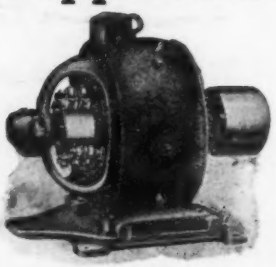
HIGH GRADE

Electrical Apparatus

A line of Slow Speed Motors Especially Adapted to Textile Work

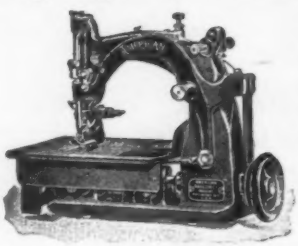


American Raveller Company

PHILMONT, N. Y.

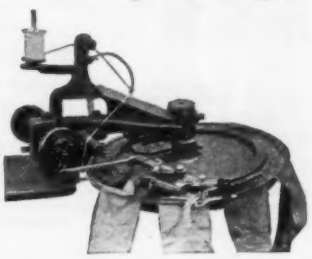
MANUFACTURERS AND PATENTEES OF

High Speed, Elastic Stitch Sewing and Trimming Machines



Also ravelling machines for making knit underwear and hosiery full fashioned.

2 line and twin needle machines for fancy stitching.



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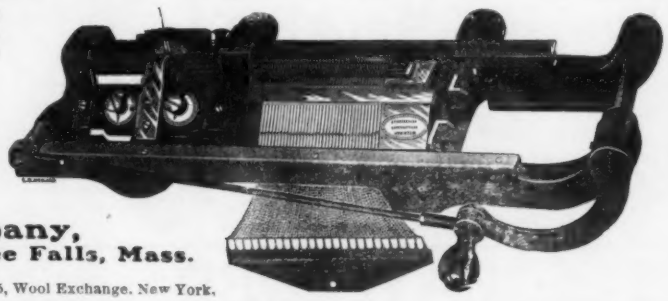
LEADER OF KNITTERS

Original and Still the Best.

Most widely used; being operated in every civilized country in the world. For description, prices, etc., see catalogue.

Circular Machines,
Rib Top and
Seaming Machines.



Lamb Knitting Machine Company,
P. O. Box, 5888, **Chicopee Falls, Mass.**
J. E. WOODHEAD, 100 22d St., Chicago.
L. D. SANBORN, Room 505, Wool Exchange, New York.

THE

DYEING and FINISHING MACHINE WORKS

Automatic Singeing Machines	Steel Dry Boxes
Automatic Dyeing Machines	Cold Hosiery Presses
Vats Extractors	Bleaching Equipment for Hosiery
Chrome Machines	Oxidizing Machines

WE ARE THE SOLE MANUFACTURERS
UNDER GEO. W. STEVENSON'S PATENTS
Office 605 Colonial Building Reading, Penna.

We Lead in the Industry of Knitting Machines.
130,000 Knitting Machines in use all over the Universe

CLAES & FLENTJE

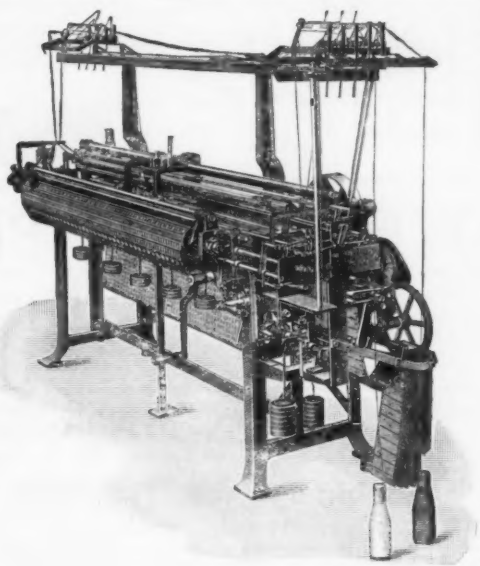
Mühlhausen Thr., Germany
(Largest Knitting Machine Factory in the World)

Our knitting machines are far superior to any other in simplicity and construction. They give a higher production than any other on the market.

Machines for all kinds of plain and fancy knit goods by hand and full automatic by power.

The cut represents our newly patented fully automatic left and left power machine for producing fancy stitches that formerly could only be produced by hand.

For full particulars, needles and supplies for all kinds of knitting machines, write to



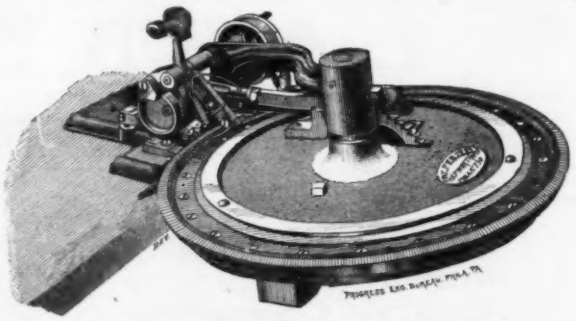
Ainslie Knitting Machine Co.
281 Ainslie Street, Brooklyn, N. Y.

HEPWORTH & CO.'S
Patent Single-Stitch
Looping Machine

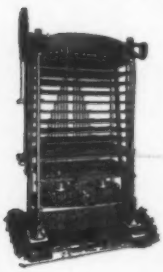
Needle working from the inside, avoiding the breaking of needles and points and picking up the metal.

Single and Double Stitch or Both Combined.

JOHN W. HEPWORTH & CO.,
N. W. Cor. Lehigh Ave. and Mascher St
PHILADELPHIA.



The CRAWFORD



HOLLOW STEAM
PLATE PRESS
For Knit or Woolen Goods.
The most reliable machine of the kind on the market.
PRESS PAPERS and FENDERS.
SPENCE & RIDEOUT,
Successors to
J. J CRAWFORD & SON,
NASHUA, N. H.
Established 1863.

Patent Loopers

Single, double and two thread Stitch.
with the
Patent Raised
or
Straight Points.
Beattie Manufacuring Co.,
Cohoes, N. Y.

Drying Forms.

BOARDS FOR FAST BLACK DYERS.
HOSIERY FINISHING BOARDS.
BEST WORK. PROMPT SERVICE. PRICES ALWAYS RIGHT.
JOS T. PEARSON 1815-21 TAYLOR ST. KENSINGTON PHILA

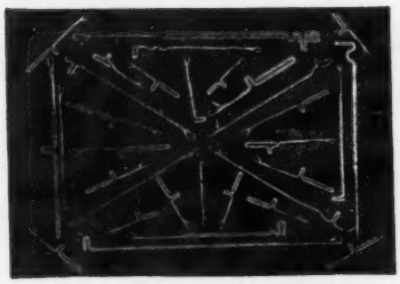
Hosiery Boards.

WILLIAM C. BULL, BENNINGTON, VERMONT.
MAKER OF
For Ladies', Gents' and Children's Goods.
Latest Styles.
Best Workmanship.
Drying Form Boards
OF EVERY VARIETY.

MASON MANUFACTURING CO., Inc.
Makers of
Machinery for Braiding and Finishing Sash Cord.
15 1-2 Chardon Street BOSTON, MASS.

TRY OUR "SUPERIOR", OR SUNKEN RIVET-HEAD NEEDLES

They will save you money.



Dodge Needle Co., Manchester, N. H.

WM. COREY CO.,

Manufacturers of Knitting Machine

Latch Needles

MANCHESTER, N. H.

EXCELSIOR NEEDLES.

The best Hosiery Needles in the market.

Manufactured by

WARDWELL NEEDLE CO., Lakeport, N. H.

WM. BREEDON'S SON,

MANUFACTURERS OF

Spring Knitting Needles

AND BURR BLADES OF ALL KINDS.

AMSTERDAM, - N. Y.

Reels for Cotton WOOLEN AND WORSTED

Patented Hosiery Winders, Cop Winders and Spoolers.

LINDSAY, HYDE & CO.,

2124 to 2130 East York St., PHILADELPHIA, PA.

Standard Latch Needles

MANUFACTURED BY

EXCELSIOR NEEDLE CO.,

TORRINGTON, CONN.

The Largest Manufacturers of Machine Needles in the World.

STANDARD

TRADE MARK.

Longer Wear. Better Work.

Less Mending. Fewer Seconds.

Have you tried our

Patent Milled Rivet?

Agents

C. B. Barker & Co., Ltd., 42 W. 15th St., New York.
Manufacturers' Supplies Co 418 Arch St., Phila.
C. Shawl, 414 Polk St San Francisco, Cal.
J. C. Strittmatter, 2a Calle de San Francisco No. 9, City of Mexico, Mexico.

L. T. IVES CO.

Manufacturers of all kinds of

SPRING KNITTING NEEDLES

NEW BRUNSWICK, N. J.

KEYSTONE LATCH NEEDLE CO.

JOHN C. EGLY, MGR.

MANUFACTURERS OF

Patent and Regular Latch Needles

Needles for all makes of Knitters and Ribbers.
Keystone Spring Bottom Needles for all makes of Knitting Machines always in stock for immediate delivery.
Special Needles made to order.

543 W. Lehigh Avenue, Philadelphia, Pa.

TEXTILE MACHINE WORKS

THUN & JANSSEN, READING, PA.

Manfrs of BRAIDING MACHINES

for making Dress Trimming Braids, Cotton Tapes, Underwear Braids, Shoe Laces, Spindle Banding, etc. Winders, Doublers, Measuring Machines, Reelers, Singeing and Finishing Machinery. Special Machinery.

The Continental Latch Needle Company.

Manufacturers of the BEST GERMAN NEEDLE on the Market.

RIVETS GUARANTEED. Samples on application. SPRING NEEDLES A SPECIALTY.

120-122 LIBERTY STREET, - - - - - - - - - NEW YORK.

McCormick Turbines

both Cylinder and Wicket Gate, giving **ENORMOUS** power are used in hundreds of textile mills throughout the world.

We make a specialty of designing turbines to meet the requirements of the public.

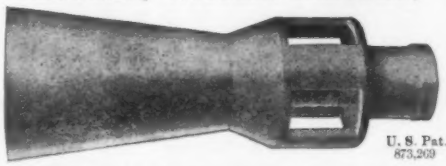
We build Francis turbines in spiral flumes to operate under high heads.

42000 H. P. in vertical shaft turbines now in course of construction to operate 10 umbrella type generators in power plant of Chattanooga & Tennessee Power Co.

Chicago Office, 644 Am. Trust Bldg.
Boston Office, 176 Federal St.

S. MORGAN SMITH COMPANY, York, Pa., U.S.A.

GEYSER WATER HEATER



U. S. Pat. 873,269

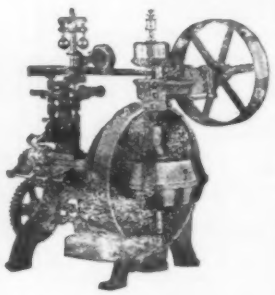
To attach to end of steam pipe for heating liquids in tanks or vats. Modifies that disagreeable noise caused by the direct introduction of a steam jet and raises the liquid to the required temperature in about 70% of time required by latter. By its thorough circulation it distributes an even temperature throughout the tank. Price list upon application.

C. G. SARGENT'S SONS CORPOR., Graniteville, Mass.

Soft Clear Water.

We-Fu-Go and Scaife Water Softening Plants, and Scaife Water Filters can be seen in actual operation in Textile Plants in any part of the U. S. Apparatus designed to suit each special case, and we guarantee results. Write for Illustrated Catalogue.

WM. B. SCAIFE & SONS CO., Pittsburgh, Pa.



Water Wheel Governors

OUR compensating type more fully meets the needs of Textile Mills than any other. This is due to its being the only successful quick acting, mechanical, governor and its perfect control of large as well as small changes. 1500 of this type in use in mills and electric power plants.

Woodward Governor Co., Rockford, Ill.

HUNT-McCORMICK WATER TURBINES

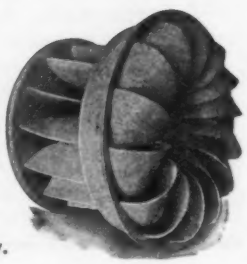
CYLINDER OR BALANCE GATE CASING

Highest Efficiency, Greater Power,
Easy and Quick Regulation,
Steady Motion, Durability.

Steel Penstocks a Speciality.

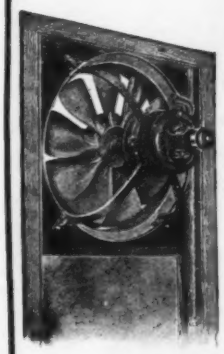
RODNEY HUNT MACHINE CO.

ORANGE, MASS.



BRANCH OFFICE: 70 Kilby St., Boston, Mass.

See our Woolen Machinery advertisement on page 47.



AMERICAN BLOWER COMPANY
"SIROCCO"

FOR MILL VENTILATION
NEW "American-Sirocco" PROPELLER

Will deliver more air, against higher resistance. requiring less power, than any other type or make.

Positively the latest development in **Disc Fan** design and construction.

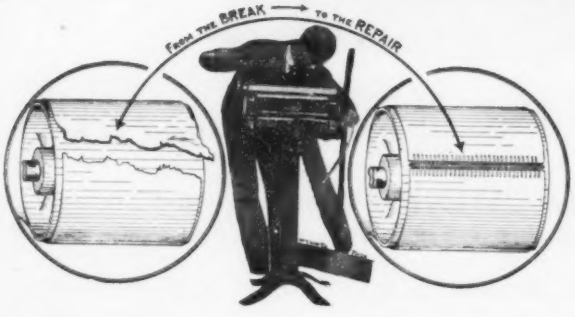
General Offices, Detroit. Works, Detroit, Mich. Troy, N. Y.
Eastern Sales, 141 Broadway, New York. Southern Sales, Empire Bldg., Atlanta.

SALEM ELEVATOR WORKS
SALEM, MASS.

ELEVATORS

ESPECIALLY ADAPTED FOR MILL USE.

SEND FOR ILLUSTRATED CATALOGUE AND ESTIMATE.



Takes but a few minutes—3 minutes for a 5" belt to be exact—other sizes in proportion when the

JACKSON Belt Lacer

is used, and mind you the joint is as pliable as every other portion of the belt and will stand a tensile strain of 1900 lbs. without breaking or pulling apart

Send for Booklet explaining our FREE OFFER

Birdsboro Steel Foundry & Machine Company
Birdsboro, Pa.

SMITH & FURBUSH MACHINE CO.,

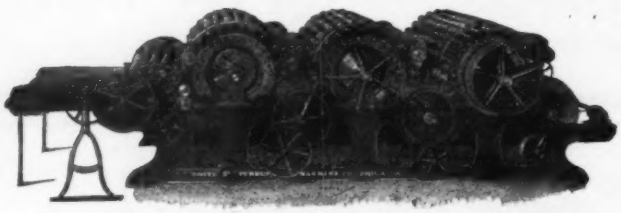
Hancock & Somerset Sts. Philadelphia, Pa.

GARNETT MACHINES CIRCULAR No. 14A

One Cylinder, 20" x 60",
Garnett Machine, with 16" Metallic Breast.

Two Cylinder, 20" x 60"
Garnett Machine.

Three Cylinder, 20" x 60", Garnett Machine.



Three Cylinder, 30" x 60',
Garnett Machine, with 16" Metallic Breast. (Smith Pattern.)

Our line of **GARNETT MACHINERY** and appurtenances for reducing Cotton and Wool Waste also Knit and Cloth Clippings to the original fibre is very complete.

Write for Circular No. 14A

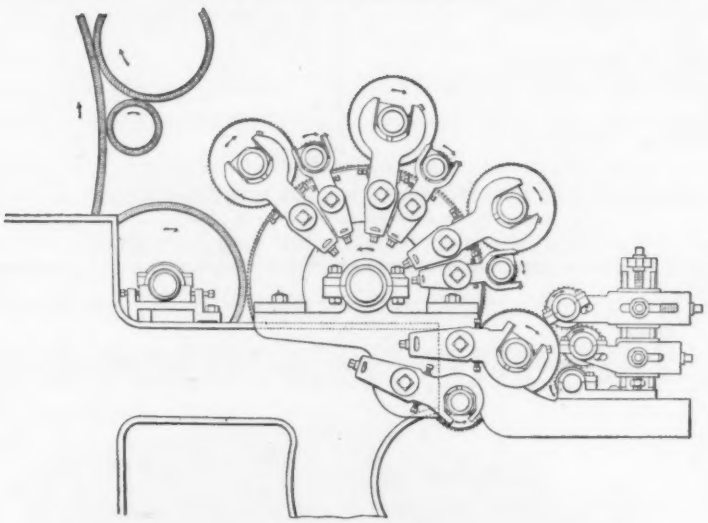
We invite Visitors to Philadelphia, Pa, to see our Machinery in Operation.

SMITH & FURBUSH MACHINE CO.,

Hancock & Somerset Sts. Philadelphia, Pa.

METALLIC CARD BREASTS CIRCULAR No. 15A

We build a complete line of METALLIC BREASTS and BURRING MACHINES for CARDS.



Metallic Breast. Style No. 3A.
Set Low for Short Rib Frame.

POSITIVE SCREW ADJUSTMENT
BALL AND SOCKET SELF-ALIGNING SLEEVE BEARINGS
MAXIMUM DISTANCE BETWEEN WORKERS AND STRIPPERS

Write for Circular No. 15A

We invite Visitors to Philadelphia, Pa., to see our Machinery in Operation.

AUG 13 1909

SMITH & FURBUSH MACHINE CO.,

Hancock & Somerset Sts. Philadelphia, Pa.

MANUFACTURERS OF

PICKERS { Lumpers — Rag and Carpet Shredders, Rag, Burr, Wool and Fearnaught Pickers.

WILLOW { Square Box and Cone Willows and Dusters.

GARNET MACHINES { For carding cotton and woolen waste clippings, etc., also for manufacturing cotton batting or felts.

FEEDS { Self feeds for wool, worsted or cotton, also Camel Backs, Blamires, and Apperleys for cards.

METALLIC BREASTS { Burring Machines and Self-Stripping Feed Rolls for Cards and Garnett Machines.

CARDS { Woolen, Worsted, Cotton Waste and Shoddy Cards.

MULES { Heavy and Durable, For Wool and Waste Yarn.

TWISTERS { Plain and Fancy Twisters for Flake Loop or Bourette Yarn.

BOBBIN WINDER { Automatic Jack Bobbin Builder; Adjustable Creel for different length spools.

WARPING MACHINERY { Copper Cylinder Warp Dressers with single and double size pans —Beamers—section warp mills. Warp Mills, Dresser Spoolers for worsted or wool.

GRINDERS { Floor, Traverse and Portable Grinders for Cards, Garnetts or Rag Pickers.

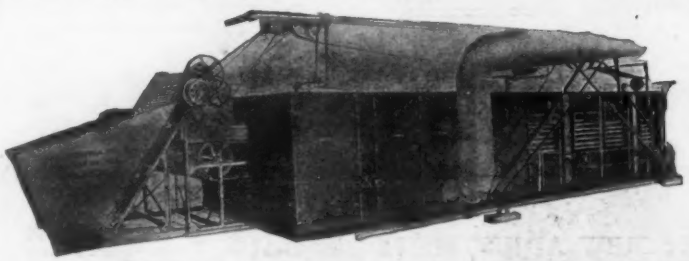
Machinery for Manufacturing Rewoven Bagging from Old Gunny Bagging.

TURNING RESTS — CARD STRETCHERS — FILLET WINDERS AND CLEANING FRAMES

Special Circulars furnished for each Machine.

LOOK ON THE OTHER SIDE OF THIS PAGE.

Proctor **Drying Machines** *Fire Proof*



Yarn Dryers
Scouring Machines
Fans

BUILT of METAL

Stock Dryers
Carbonizers
Hosiery Dryers

Apron troubles overcome by the Interlocking Chain Conveyor

It needs no adjustment

Conveyor Separate from Dryer

Philadelphia Textile Machinery Company

Hancock and Somerset Streets PHILADELPHIA, PA.

LE N '09

CELL DRIER MACHINE CO.

TAUNTON, MASS.

BOSTON OFFICE, STONE AND WEBSTER BUILDING, 147 MILK ST.

¶ We claim that the principle of the **CELL DRIER** is applicable to all Fabric drying propositions.

¶ As wide as a Sheet, as narrow as a Web, no matter how much water has been absorbed.

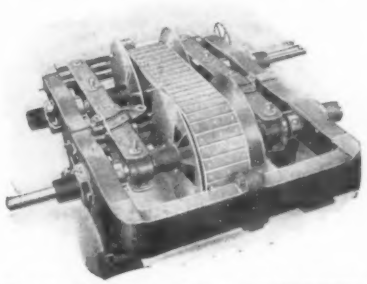
¶ Equally efficient on all Textiles, we retain the principle and design suitable installations.

¶ When no floor space is available, we hang our driers to the ceiling, entirely out of the way.

¶ Write for information.

THE MILL EQUIPPED WITH

"Reeves" Variable Speed Transmission



for regulating the speed of Slashers, Singers, Drying Cylinders, CELL DRIERS, Printing and Dyeing Machines, Steam Agers, Tenter Frames, Dampeners, etc., produces the best and most reliable results. *Scrap* your Cones.

Enquire of those who are using them.

Reeves Pulley Company,
Columbus, Indiana.

New England Agents,
CELL DRIER MACHINE COMPANY,
Taunton and 147 Milk St., Boston, Mass.

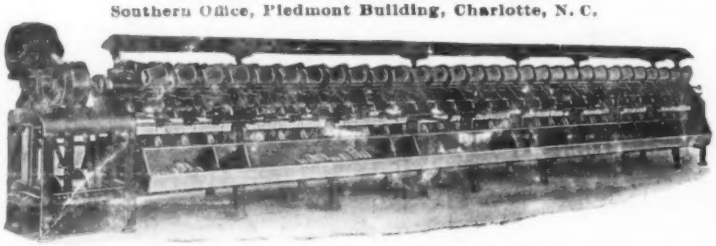
New York Representatives, PATTERSON, GOTTFRIED & HUNTER, 146-150 Centre Street.

Foster Machine Company

WESTFIELD, MASS.

Southern Office, Piedmont Building, Charlotte, N. C.

Cone Winding.
Tube Winding.
Skein Winding.
Quill Winding.
Doubling.



Both "Open" and "Close" Winding Machines for every branch of textile manufacturing.

New Model No. 12 Cone and Tube Winder.

Lombard Metallic Breasts

are dividend payers because of their lasting quality. They are made of the finest steel tubing, clothed with the best metallic wire and can easily be re clothed without injury to the shell.

Lombard Adjustable Arch for Worsted Work

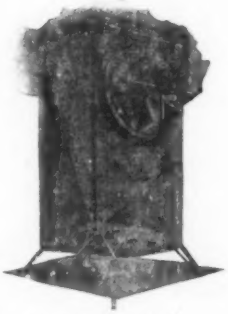
With this arch any Workers or Strippers and all top work can be spaced and changed at will. A woolen card can quickly and easily be made ready for Worsted Work, without removing the arch sides—and vice versa. Perfect adjustment and rigidity guaranteed.

Remember also that **Rae's New "Century Cards"** are the best. Ask us why.

The Lombard Machine Co.

Worcester, Mass.

Even, Regular Humidity



Is produced automatically by the natural evaporation from moist surfaces into moving air.

Spray humidifiers must be set by hand and by "guess" — or controlled by ...ate devices.

It is easy to understand why the best are

BELL EVAPORATIVE HUMIDIFIERS

The Griscom-Spencer Co.,

90 West St., New York

Walworth Manufacturing Co.,

HIGH PRESSURE

VALVES AND FITTINGS

"Walmanco" Pipe Flanges

"Never Stick" Blow-off Cocks, Mill Supplies.

GENERAL OFFICES:

128 FEDERAL STREET, BOSTON, MASS.

New York Office: Park Row Building.

JUL 13 1947